An Overview of the Construction Industry in the Kingdom of Saudi Arabia 1390AH – 1415AH (1970-1995)

by

Abdullah M. A. Al-Ghamdi

A Thesis Presented to the

FACULTY OF THE COLLEGE OF GRADUATE STUDIES

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS

DHAHRAN, SAUDI ARABIA

In Partial Fulfillment of the
Requirements for the Degree of

MASTER OF SCIENCE

In

CONSTRUCTION ENGINEERING AND MANAGEMENT

October, 1999

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DEANSHIP OF GRADUATE STUDIES

This thesis, written by ABDULLAH M. A. AL-GHAMDI under the direction of his Thesis Advisors and approved by his Thesis Committee, has been presented to and accepted by the Dean of Graduate Studies, in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE IN CONSTRUCTION ENGINEERING & MANAGEMENT.

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عمادة الدراسات العليا
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Date

DEDICATION

To my uncle Faris, my brothers, my mother, my wife,

my sisters, sons and daughter

ACKNOWLEDGEMENT

The author wishes to express his sincere appreciation to Dr. Sadi Assaf for his continued support, guidance, helpful suggestions and assistance during the entire study and preparation of this thesis. His advice contributed a great deal to the successful completion of this thesis.

The author wishes to extend special thanks to Dr. Abdulmohsen Al-Hammad and Dr. Osama Jannadi for their directions and valuable advice.

Special thanks to Dr. Abdulaziz A. Bubshait for his advice and support throughout the entire period of this study.

Finally I would like to extend my special thanks and extreme acknowledgement to the King Fahd University of Petroleum & Minerals for providing supports and assistance.

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THESIS ABSTRACT

This thesis considers the accomplishments of the construction industry and trends within the industry in Saudi Arabia over a period of 25 years, from 1390AH to 1415AH (1970-1995). In addition, this thesis assesses the contribution made by all parties associated with construction industry towards the development of the industry during this period.

Government publications such as Statistical Yearbooks, Five Year Development Plans, Annual Reports of the Saudi Arabian Monetary Agency and many more sources were searched for the data regarding the accomplishments of the construction industry in Saudi Arabia and the level of contribution of all parties involved in it. A total of 46 tables and 41 figures are presented to illustrate these achievements, trends and contributions, and to compare the actual values of construction against the estimated ones.

The results show that the accomplishments of the construction industry peaked during the Second and the Third Development Plans. Moreover, they show that the accomplishments were beyond the most optimistic expectations especially if those accomplishments are measured in terms of the amount of time taken to achieve the results. They also show that the contributions of all parties toward the development of this sector were extraordinary. Finally, these results also show that there is a need to update the data for the construction industry on a regular basis, wile a study of other factors that affect the construction industry is also highly desirable.

خلاصة الرسالة

تشتمل هذه الرسالة على إنجازات وإتجاهات صناعة التشييد في المملكة العربية السعودية خلال فترة (٢٥) خمسة وعشرون سنة تمتد من سنة ١٣٩٠ الى ١٤١٥هـ (١٩٧٠ - ١٩٩٥م) . بالإضافة الى ذلك ، تقيم هذه الرسالة الإسهام الذي قام به جميع الأطراف في صناعة التشييد بغرض تطويرها خلال المدة المذكورة .

تم الحصول على المعلومات المبينة في هذه الرسالة عن طريق المطبوعات الحكومية مثل الكتيبات الإحصائية الحكومية ، وخطط التنمية الخمسية ، والتقارير السنوية الصادرة من مؤسسة النقد العربي السعودي ، وغيرها من المصادر العديدة التي اشتملت على البيانات الإحصائية المتعلقة بمنجزات صناعة التشييد في المملكة العربية السعودية ، و مستوى الإسهام لكل الأطراف المشتركة فيها . تحتوي هذه الرسالة على ما مجموعه ٤٦ جدولاً و ٤١ رسماً بيانياً لعرض وتوضيح النتائج التي تم التوصل لها ، والإتجاهات والإسهامات ، ولمقارنة المستويات الفعلية للتشييد مقابل المخصصات المالية .

أظهرت النتائج أن منجزات صناعة التشييد وصلت الى ذروتها خلال خطط التنمية الثانية والثالثة . وكان مستوى الإنجازات وإسهام جميع الأطراف تجاه تنمية هذا القطاع يفوق أكثر التقديرات تفاؤلاً ، خاصة إذا تم قياس هذه الأعمال المنجزة بالنظر الى الوقت الذي استغرقته لتحقيق هذه النتائج . أخيراً ، أظهرت هذه النتائج أيضاً أن هناك حاجة ماسة لتحديث البيانات والمعلومات الخاصة بصناعة التشييد على أسس منتظمة و دراسة العوامل الأخرى التي تؤثر عليها .

CHAPTER - I

1.1 INTRODUCTION

In a quarter of a century (1390-1415), Saudi Arabia has achieved what others have taken fifty to one hundred years to achieve. A country that had almost no infrastructure at all in the late sixties (1960s) had to spend hundreds of billions of Saudi Riyals to promote this sector. Construction work continued round the clock just to catch up with other nations. Consequently most of the contracts that were executed during the period from 1973 to 1983 either were overpriced or the quality of the constructed projects was not up to the mark. "The acceleration of the pace of construction has placed considerable strain on available resources. Labor, which is scarce, doubled in cost between 1972 and 1974. At the same time the cost of materials increased by 88%". [Ahmed, 1976]

As a matter of fact, it was not only the pace of construction that affected contract overpricing. The magnitude, the quantity and the type of the projects to be constructed and the lack of experience to handle such projects were direct causes of contract overpricing. "Due to the great demand on the construction industry, the manipulation and overpricing by the foreign contractors, and the inability of the market to meet that demand or to handle the available cash flow, the rate of inflation has jumped to a very high level during the first two years of The Second Development Plan." [Al-Jarallah, 1983]

On the other hand, increasing demand for operation and maintenance activities, which will be discussed later in chapter two, was evidence of the deterioration of the constructed projects. The life expectancy of those projects became shorter because the quality of constructed projects was not a factor. "During the construction boom in Saudi Arabia, between 1975 and 1985, quantity and speed were essential requirements, but at the present time, cost and quality are much more

important." [Bubshait, 1992] All these causes resulted in frequent repairs and costly maintenance.

Nonetheless, the accomplishments of the construction industry for the period covered by this study (1390AH-1415AH) greatly exceeded all expectations.

1.1.1 GOVERNMENT CONSTRUCTION FUNDING

Saudi Arabia is located in the southwestern part of Asia. It has the largest reserve of oil in the whole world. These strategic reserves have made Saudi Arabia one of the most important countries in the world from the economic point of view, in addition to its importance to the Islamic world from the religious point of view.

The Government of Saudi Arabia plays a vital role in the construction industry. This industry gained full momentum right after the sharp increase in oil prices in the mid seventies (1970s). The total income for the government budget comes from oil revenue and from other sources. Oil revenue is the backbone of the government budget. It

represents on average somewhere around 75% of the total budget. Table (1) gives an indication of what the oil revenue represents to the total revenue during a sample of years. Table (1) indicates that oil revenue accounts for 77% of total revenue. In figure (1) the trends of both the total income of the Government and the income from oil are shown, running parallel to each other throughout the period.

As it accounts for this high percentage of the total revenue, the oil industry does in fact affect anything connected with or financed through the government income. This includes all the constructions that are financed by the Government. Therefore, until the other sources of income increase their share of the total budget, oil revenue will continue to exercise the same effect on the construction industry in Saudi Arabia.

Oil production and oil prices are good indications of future trends within the construction industry. If production and prices of oil are high, the Government will tend to appropriate more for construction as they did in the late seventies and early eighties (1977-1982), when they

spent almost nine hundred billion Saudi Riyals on construction. [Annual Reports of the Saudi Monetary Agency]

On the other hand, when oil production and prices were in decline, the Government spent less on construction as they did in the late eighties and early nineties.

The income earned from selling oil played a vital role in promoting the construction industry in Saudi Arabia. This source of income became available shortly after the unification of the country in the early nineteen thirties (1930s). Since then, the construction industry in Saudi Arabia has gone through many changes especially over the period from 1390 to 1415AH (1970-1995).

Table (1) Total Government Revenue vs. Oil Revenue

Gregorian Year	Hijriah Year	Total Revenue Million SR.	Oil Revenue Million SR.	PERCENTAGE
1974	1394/1395	100,100	94,200	94.1
1975	1395/1396	103,384	93,481	90.4
1976	1396/1397	135,957	121,191	89.1
1977	1397/1398	130,659	114,042	87.3
1978	1398/1399	131,505	115,078	87.5
1979	1399/1400	211,196	189,295	89.6
1980	1400/1401	348,119	319,305	91.7
1981	1401/1402	368,006	328,594	89.3
1982	1402/1403	246,182	186,006	76.0
1983	1403/1404	206,419	145,123	70.3
1984	1404/1405	171,509	121,348	70.8
1985	1405/1406	133,565	88,425	66.2
1986	1406/1407	76,498	42,464	55.6
1987	1407/1408	103,811	67,405	64.9
1988	1408/1409	84,600	48,400	57.2
1989	1409/1410	114,600	75,900	66.2
1990	1410/1411	154,721	118,142	76.4
1991	1411/1412	161,879	121,000*	74.7
1992	1412/1413	165,400	127,000	76.8
1993	1413/1414	141,500	106,000	74.9
1994	1414/1415	129,000	95,500	74.03

Sources:
1. Statistical Year Book
2. Annual Reports of Saudi Arabian Monetary Agency

* Oil Revenue for the Year 1411/1412 is an estimate

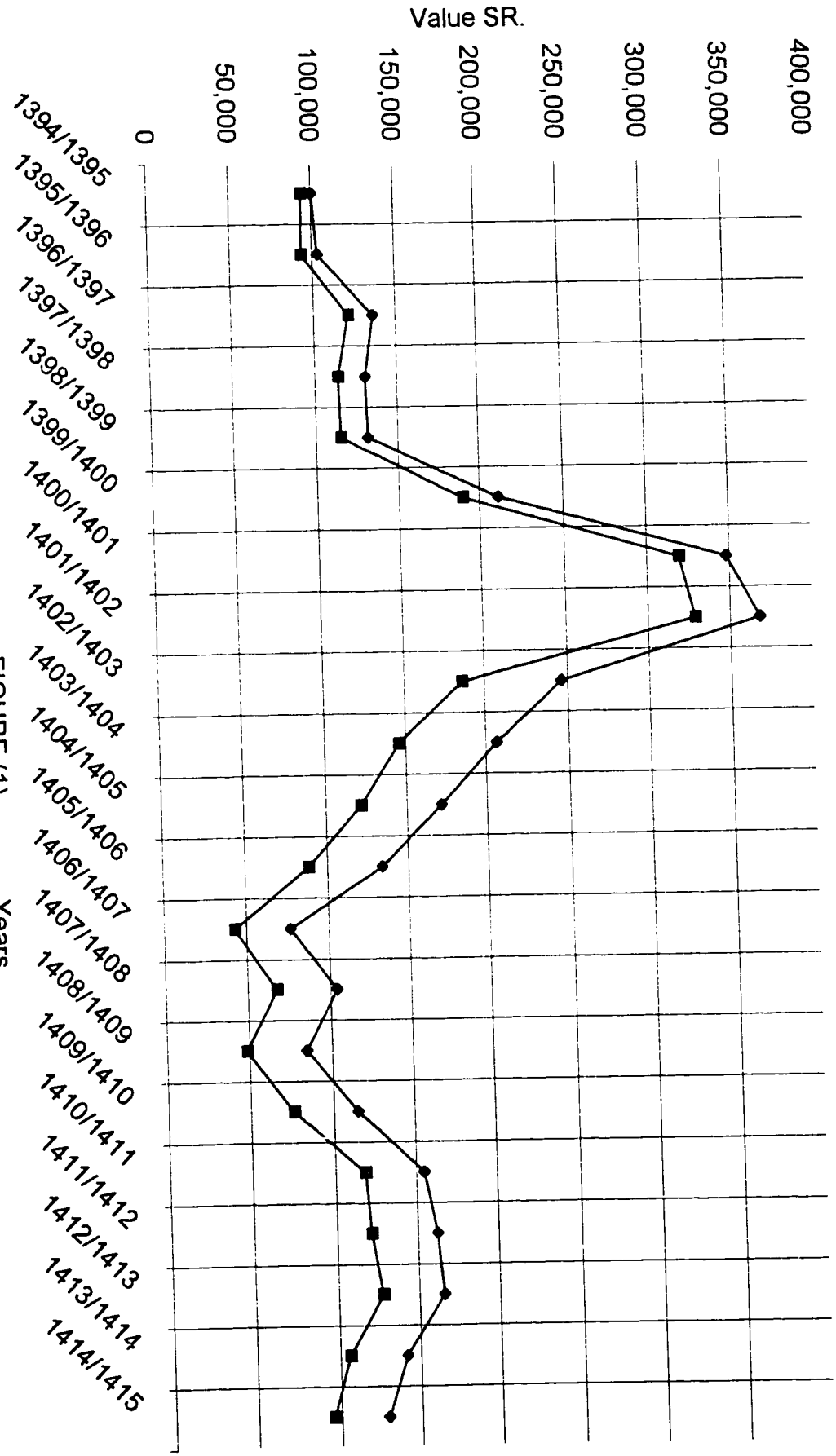

Total Government Revenue vs. Oil Revenue
(Million)
Value SR.
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years

FIGURE (1)

1.1.2 CONSTRUCTION PARTIES

Construction is generally deals with the process of building, whether involving new projects or expanding, renovating, maintaining, replacing or demolishing existing buildings or facilities. Two parties are involved in the construction process: an external party and an internal one. An external party is composed of the following members:

1. A project management team
2. A labor force
3. Support staff consisting of
    a. Consultants (A/E)
    b. Accountants
    c. Quality controllers
    d. Planners and schedulers

4. Contractors and Subcontractors

The second party, which is the internal party, is a combination of the following:

1. Government

2. Semi-government companies

3. Private sector

These two parties will carry the project through from the start of conceptual design to final payment.

1.2 STATEMENT OF THE PROBLEM

The construction industry in Saudi Arabia has played an important role in the development of the country. It was established hurriedly and at great cost as the Government was anxious to bring the industry into line with those of developed countries. It supported the rapid establishment of the industry and the massive expenditure involved.

A detailed, unified account of the development and achievements of the construction industry, including the problems that it has faced is desirable, as the accounts currently available are limited in scope.

1.3 SIGNIFICANCE OF THE STUDY

Gathering all the scattered information regarding the construction industry in Saudi Arabia in one document will serve all parties involved in this industry. Even if some of the information or figures deal with appropriation, they will indicate what the aims of the planners are and what they have to take into consideration. They will be helpful from the economic as well as the historical point of view.

1.4 PREVIOUS STUDIES

At present there is no study that covers the construction industry in Saudi Arabia over the period from 1390 to 1415H (1970-1995). There is no detailed, in-depth study about this industry, although it represents the backbone of development in Saudi Arabia.

There are a few studies about this industry. Through the literature review and on-line-computer search, it was found that what was written about the construction industry in Saudi Arabia is limited and superficial. However, through that review and search, the following items were found:

1. Construction Industry in Saudi Arabia

Dr. M. Al-Jarallah in an article titled " Construction Industry in Saudi Arabia " described the status and the size of the construction industry in Saudi Arabia up to the year 1982. However, he did not describe the achievements and shortfalls of the Saudi Arabian development process.

Dr. Al-Jarallah cited facts associated with the construction industry and gave some examples to help the reader understand, assess and comprehend the size, diversity and type of construction boom that occurred in Saudi Arabia.

The author of the article went over construction practices and described the types that were used in Saudi Arabia. He also discussed the problems that were facing this industry. Dr. Al-Jarallah, before concluding his article, discussed future trends in the construction industry in Saudi Arabia. [Al-Jarallah, 1983]

2. The Role of External Parties to Include Government and Financial Institution in Saudi Arabia in the Construction Field

This thesis emphasizes the significant role of external parties in encouraging the government and financial institutions in Saudi Arabia to participate fully in the construction field, whether by proposing projects to be undertaken or by financing the proposed projects. [Al-Awami, 1992]

3. The Effect of Government & Private Sectors on the Supply of Housing in Saudi Arabia

This paper includes the contribution of the government and the private agencies to the supply of housing in the Kingdom by the

construction of mass housing projects, initially to deal with the huge shortage of housing caused by the massive population increase in the urban areas.

The second part includes the major housing programs that were undertaken by Government agencies such as the Real Estate Development Fund, the Ministry of Housing, the Royal Commission of Jubail and Yanbu and the Directorate of Military Works. Other housing projects and programs, which were undertaken by other agencies, either for employment or for investment purposes, are also included in this section.

Finally, the third part considers the degree of success achieved by those agencies in their attempt to solve the housing shortage problem. [Al-Shehab, 1984]

4. Saudi Arabia: Economic Trends, Business Environment and Investment Opportunities

This book is a guide to the Saudi Arabian economy, not an abstract theoretical work on economic development in the Kingdom. It is written as an introduction for businessmen, bankers, exporters, contractors, sales directors, industrial enterprises, joint venture partners, wholesalers, government trade officials, politicians, researchers, consultants and students, as well as all those keen on understanding the Saudi economy or who have business interests and/or financial exposure within the Kingdom. [Henry T. Azzam, 1993]

5. Owner Involvement in Construction Projects in Saudi Arabia

The objective of this paper is to investigate the role of the public owner's involvement in each phase of the construction process (planning, design, and construction). Tasks in each phase were identified and ranked according to their importance to the owner.

The authors conducted a survey to measure the level of owner (by Government organizations only) involvement in each phase of the construction process. The authors concluded their study by presenting the areas of heavy, moderate and low involvement of the owner in the construction activities. [Bubshait & Al-Musaid, 1991]

6. SAUDI ARABIA'S ECONOMY: OIL AND THE SEARCH FOR ECONOMIC DEVELOPMENT

The main objective of this book is to identify the importance of oil as the main source of income in Saudi Arabia. It is seen as the driving force behind the development of the country. This book is divided into 12 chapters. Chapters one to four are about the oil sector in general. Chapters five to seven are about the development of other sources of income to lessen the dependency on oil. The rest of the book is about the development of all the other sectors such as electrical, educational and health. [Askari, Hossein, 1990]

7. Construction Financing in Saudi Arabia

Al-Dulaijan in his thesis studied the financial system of the construction industry in Saudi Arabia. In his study, he dwelt on three sources: literature review, meetings with five Saudi commercial banks and from conducting a survey of twenty contractors with different classifications and with an average annual volume of work of more than SR.30 million.

Al-Dulaijan wrote about the background of the financial system in Saudi Arabia. He touched upon the Saudi Development Plans to show the role of government in financing the construction industry in the country. He also discussed the role of commercial banks in financing the construction industry. [Al-Dulaijan, 1987]

8. An Overview of the Construction Industry in Saudi Arabia, Accomplishment and Regulations 1970-1990 by Firas Mazloum

Mazloum in his final senior thesis discussed the construction industry in Saudi Arabia over the period from 1970 to 1990. In his study, Firas

presented the five five-year-plans and the accomplishments associated with these plans. He covered the subject of contractors, their classifications and field of expertise. He repeated this approach for the consultants, including even those who did not have any direct connection with the construction industry. The author discussed the government rules and regulations that affect only the contracting business. He also discussed the availability of raw materials, mainly minerals, in Saudi Arabia. The rest of his study was about the financial institutes and forecasts for the future of the construction industry.

9. The Effect of Economic Changes on Construction Cost

The main objective of this paper is to show the relationship between the change in the economy of Saudi Arabia and its effect on construction cost. The authors discussed the historical background of the discovery of oil in 1937 and how that changed the life style of the Saudis. The trends of oil production from year 1970 to year 1986 were also presented in this paper.

The authors mentioned that the year 1970 marked the start of the economic development in Saudi Arabia because the Government in that year started to implement the Five-Year-Development-Plans.

In this paper the Five-Year-Development-Plans were discussed briefly. In addition, the authors presented the factors that led to the increase in the construction cost in the initial stage of the construction boom. Moreover, the reasons behind the decline in the construction costs later in 1978 were presented in this paper.

The authors gave some examples of the construction cost of completed Government projects to show the increase and the decrease in the construction cost. [Assaf, & Al-Hammad, 1988]

10. Maintenance in Saudi Arabia: needs and recommendations for improvement

In this paper the author discussed the maintenance issues in the Kingdom, including need, planning and budgeting. He supplied some recommendations for improving maintenance effectiveness.

This paper is organized as follows: first, the author discusses the six five-year-development-plans as they relate to maintenance issues and then views the Government budgetary system and discusses its effect on maintenance.

The author presented the factors that affect operation and maintenance in the Kingdom. He also presented some recommendations for the Government to consider in order developing better practices for maintenance management to achieve greater effectiveness in maintenance planning and execution. [Al-Sultan, 1996]

The author of this thesis believes that, although the above studies were about the construction industry or related subjects in Saudi Arabia, no individual study covered all aspects of this industry, as this thesis does. The next section is about the areas that will be covered in this thesis and as can be seen it will cover a wide range of construction activities.

1.5 OBJECTIVES

The objective of this study is simply to provide an overview of the construction industry in Saudi Arabia over the period from 1390 to 1415AH (1970-1995). This includes:

1. The accomplishments of the construction industry from 1390 to 1415 AH (1970-1995).

    1.1 Total cost of construction on an annual basis

    1.2 Total cost of construction materials imported annually

    1.3 Quantity of materials produced annually

    1.4 Number of units constructed (telephone lines, dams, wells, etc.)

    1.5 Total length of roads built

    1.6 Number of building permits issued by Municipalities yearly

1.7 Number of licenses issued by the Ministry of Industry for constructing factories.

1.8 Cost of construction per Ministry or Government agency on a yearly basis

1.9 Number of loans issued by the Agricultural Bank.

2. The contribution, effect and the role played by all parties in the construction industry.

2.1 Number of contractors in Saudi Arabia and their categories.

2.2 Number of consultant and engineering offices and their types.

2.3 The increase or decrease in number of workers in the construction industry.

2.4 The role of Semi-Government Agencies in the construction industry and types of projects each one has undertaken.

2.5 The role played by owners in the construction industry in Saudi Arabia.

1.6 SCOPE AND LIMITATION

The scope of this thesis is to show what was constructed in Saudi Arabia over the period from 1390 to 1415AH (1970-1995). This will include all projects undertaken for or by the Government, the Semi-Government companies or the private sector when possible.

Moreover, part of the scope of this thesis is to address the role played by all parties in the construction industry in Saudi Arabia.

The only limitations in this thesis are the information about the projects done for or by either the Ministry of Defense or Saudi Aramco. Such information is considered restricted or confidential.

CHAPTER - II

ACCOMPLISHMENTS OF THE CONSTRUCTION INDUSTRY

1390AH-1415AH (1970-1995)

2.1 INTRODUCTION

The main goals of this chapter are to show the trends, the accomplishments and the appropriated cost of the construction industry in Saudi Arabia.

As can be seen in chapter one section (1.5), this objective, highlighting the accomplishments of the construction industry in Saudi Arabia between 1390AH and 1415AH (1970-1995), has been divided into nine sub-objectives. The data for these sub-objectives was collected from various sources, including Statistical Yearbooks, the main source of information, Annual Reports of the Saudi Arabian Monetary Agency, Achievements of the Development Plans 1390-1416AH (1970-1995),

the Annual Report of the Real Estate Fund, development plans and other documents.

A detailed study of the records available revealed a number of inconsistencies. For example, in the Statistical Yearbook of the year 1416AH, the production of cement in 1414/1415AH (1995) was 17,012,813 tons, while in the Achievements of the Development Plans 1390-1416AH it was 15,770,000 tons. Both of these are government records. The records for actual data in some cases simply did not exist, while the data that were available did not represent the complete picture concerning the total amount actually invested in the industry.

All information currently available with regard to the accomplishments of the construction industry in Saudi Arabia from 1390AH to 1415AH will be presented in the following sections.

2.2 ACCOMPLISHMENT OF CONSTRUCTION INDUSTRY AND CURRENT TRENDS WITHIN THE INDUSTRY

Construction in Saudi Arabia was one of the biggest challenges faced by the Government because of the topography of the country. Most of the land of Saudi Arabia is either desert or mountains. In both cases construction was extremely difficult. What was accomplished, construction wise, is spectacular by any standard.

In the following sections, this study will show the accomplishments and the trends of the construction over the period from 1390 to 1415 AH (1970-1995). The appropriated cost of construction will be compared against the actual cost whenever it is possible.

This study will cover the total cost of construction as appropriated in the government budget either on a yearly basis or in each Five-Year Development-Plan.

In addition, this study will show any data that are related to the following items:

1. The quantity & cost of imported construction materials
2. The quantity of manufactured construction materials
3. The quantity of units constructed
4. Total lengths of paved and earth-surfaced roads
5. Number of building permits issued yearly
6. Number of factories built and total investments
7. Construction for Government Departments
8. Value of loans granted by the Financing Institutes

2.2.1 APPROPRIATION OF CONSTRUCTION

The information (data) regarding the accomplishments and trends of the construction industry are divided into many parts. Before the data concerning all these parts are presented in detail, the total cost of construction as appropriated in the Government budget will be

presented. The total cost of operation and maintenance as appropriated in the Government budget will also be presented since it does relates to construction in one way or another. The discussion and analysis of the data will be presented later in Chapter Four.

As stated before, it is difficult to determine actual Government expenditure on construction especially if it is required in detail. It is difficult to compare the appropriated figures for all departments with the actual figures. The records that were found did not have all the information regarding the actual and the appropriated value of the construction industry in Saudi Arabia. The data located, whether actual or appropriated, are presented in the following sections. In the meantime, the data in Table (2) are the total appropriation of projects in the government budget on a yearly basis from the year 1390 AH to the year 1415AH (1970-1995). These data are the cost of all types of constructed projects, including those for the Ministry of Defense. Figure (2) is a graphical representation of the data in Table (2) and shows trends in the construction industry on an annual basis.

Table (2) Appropriation for All Government Projects

Gregorian Year	Hijriah Year	Appropriation (SR)
1970	1390/1391	002,658,556,000
1971	1391/1392	005,064,678,000
1972	1392/1393	006,807,547,000
1973	1393/1394	014,478,285,000
1974	1394/1395	026,921,433,000
1975	1395/1396	074,379,500,000
1976	1396/1397	094,794,400,000
1977	1397/1398	097,719,600,000
1978	1398/1399	097,609,000,000
1979	1399/1400	131,500,500,000
1980	1400/1401	174,737,400,000
1981	1401/1402	205,925,300,000
1982	1402/1403	202,813,900,000
1983	1403/1404	128,504,200,000
1984	1404/1405	130,096,700,000
1985	1405/1406	082,090,500,000
1986	1406/1407	082,090,500,000
1987	1407/1408	057,083,800,000
1988	1408/1409	032,299,000,000
1989	1409/1410	037,087,900,000
1990	1410/1411	034,691,000,000
1991	1411/1412	034,691,000,000
1992	1412/1413	021,260,700,000
1993	1413/1414	029,448,900,000
1994	1414/1415	021,014,000,000

Sources:

1. Statistical Yearbooks (1390-1416AH)

2. Annual Report of The Saudi Arabian Monetary Agency

3. Achievements of the Development Plans 1390-1415AH (1970-1995)

4. Fifth Development Plan

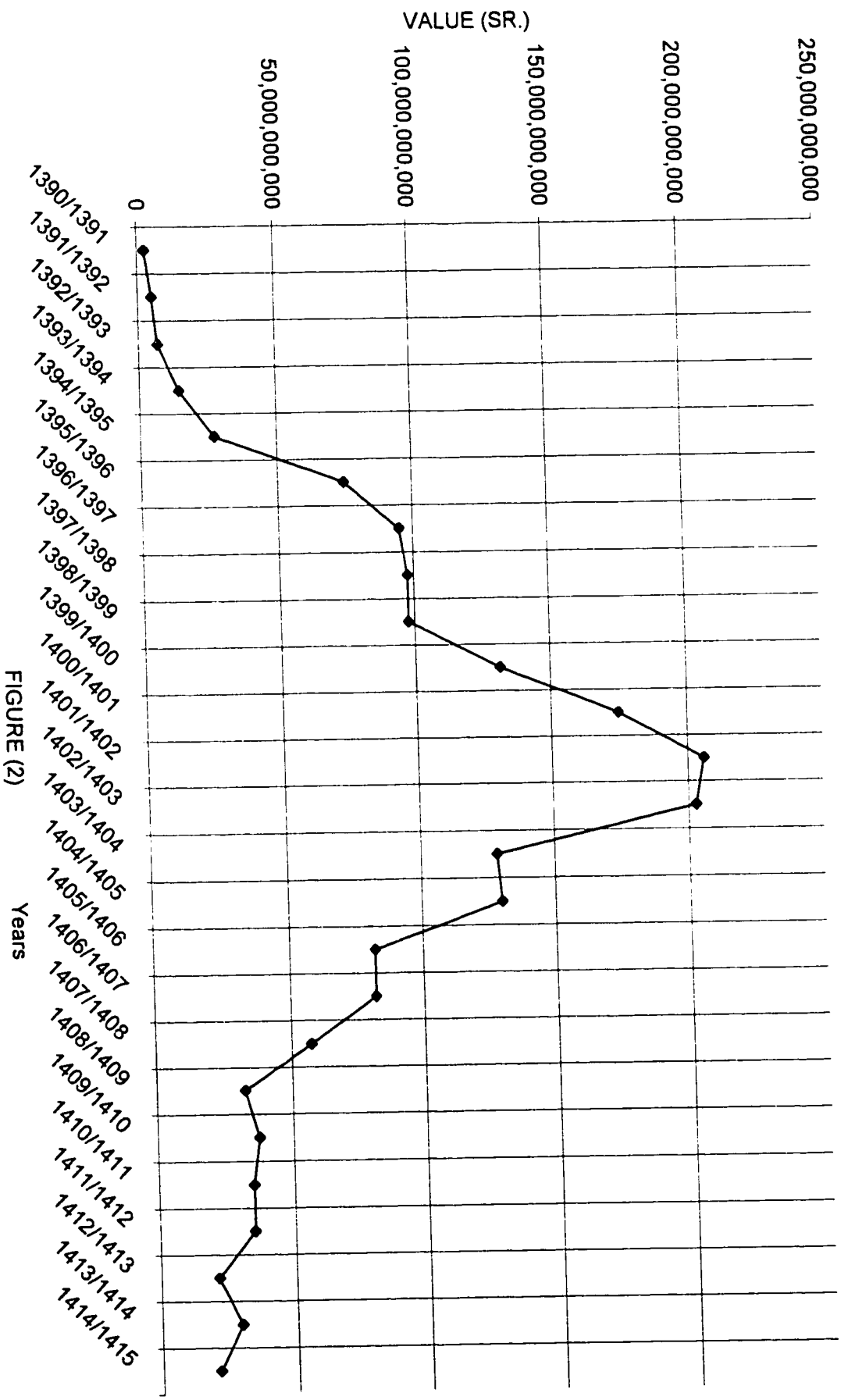

Total Appropriation for all Government Projects
VALUE (SR.)
0
50,000,000,000
100,000,000,000
150,000,000,000
200,000,000,000
250,000,000,000
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years

FIGURE (2)

Table (3) lists the total appropriated cost of construction per each development plan. As can be seen, the appropriation for the Third Development Plan was the highest one among the five development plans, followed by the Second Development Plan. Figure (3) indicates the trends within the construction industry per each development plan, revealing that the peak occurred during the Third Development Plan.

2.2.2 OPERATION & MAINTENANCE

Operation and Maintenance are important activities for the life of any facility. In Saudi Arabia, the Government realized that fact and started to pay more attention to those activities by appropriating billions of Riyals to that sector. Table (4) shows the rate of appropriating for those activities while figure (4) shows the trends.

Table (3) The Appropriation of Constructed Projects per Each Development Plan

Hijriah Years	Development Plan	Total Appropriation Value (SR)
1390-1395	1	55,930,000,000
1395-1400	2	496,077,500,000
1400-1405	3	842,077,500,000
1405-1410	4	290,651,700,000
1410-1415	5	141,105,600,000

Sources:

1. Statistical Yearbooks (1390-1416AH)
2. Annual Report of The Saudi Arabian Monetary Agency
3. Achievements of the Development Plans 1390-1415AH (1970-1995)
4. Fifth Development Plan

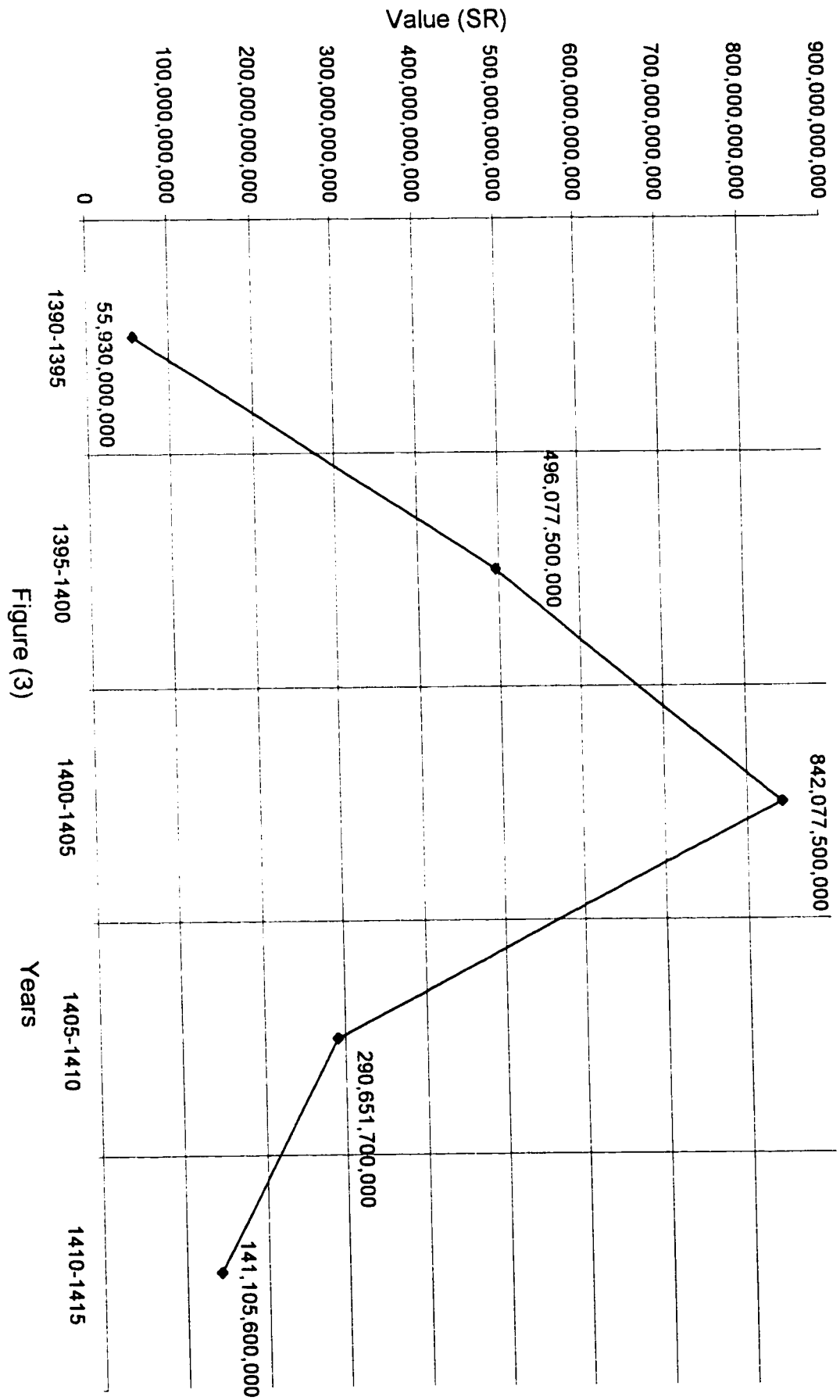

Appropriation of Constructed Projects Per Each Development Plan
Value (SR)
900,000,000,000
800,000,000,000
700,000,000,000
600,000,000,000
500,000,000,000
400,000,000,000
300,000,000,000
200,000,000,000
100,000,000,000
0
55,930,000,000
496,077,500,000
842,077,500,000
290,651,700,000
141,105,600,000
1390-1395
1395-1400
1400-1405
1405-1410
1410-1415
Years

Figure (3)

Table (4) The Appropriation for Operation & Maintenance

Gregorian Year	Hijriah Year	Value SR.
1982	1402/1403	36,294,500,000
1983	1403/1404	30,391,200,000
1984	1404/1405	28,584,600,000
1985	1405/1406	25,642,900,000
1986	1406/1407	25,642,900,000
1987	1407/1408	20,159,800,000
1988	1408/1409	21,423,000,000
1989	1409/1410	18,577,500,000
1990	1410/1411	18,392,000,000
1991	1411/1412	18,392,000,000
1992	1412/1413	19,523,300,000
1993	1413/1414	24,793,200,000
1994	1414/1415	20,205,900,000
Total		**308,022,800,000**

Sources:

1. Statistical Yearbooks (1390-1416AH)
2. Annual Report of The Saudi Arabian Monetary Agency
3. Achievements of the Development Plans 1390-1415AH (1970-1995)
4. Fifth Development Plan

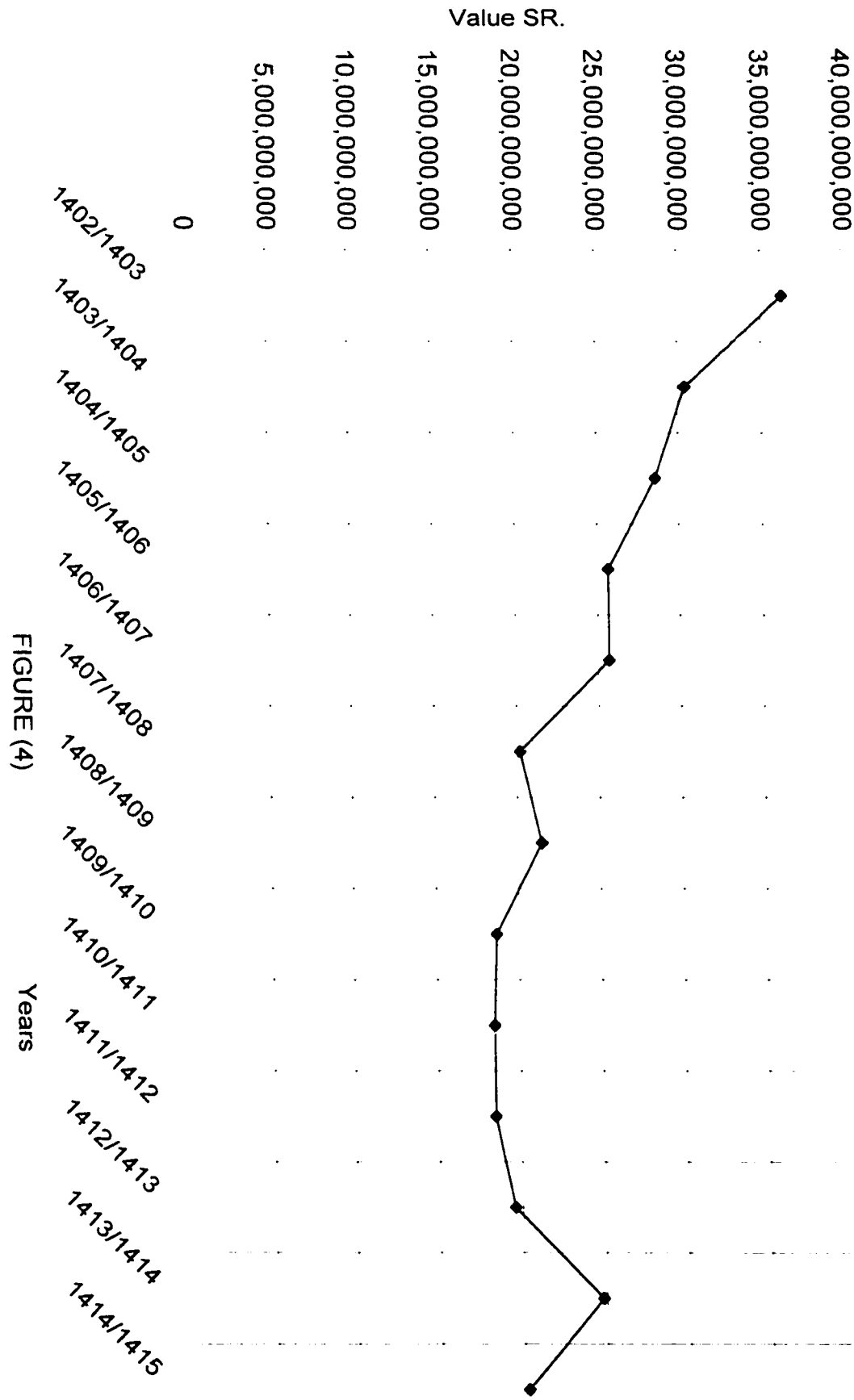

Appropriation for Operation & Maintenance.
Value SR.
40,000,000,000
35,000,000,000
30,000,000,000
25,000,000,000
20,000,000,000
15,000,000,000
10,000,000,000
5,000,000,000
0
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years

FIGURE (4)

2.2.3 CONSTRUCTION MATERIALS

Projects in Saudi Arabia during the period from 1390 to 1415 AH amounted to thousands. It was necessary, therefore, to ensure the availability of construction materials for those projects. To depend completely on imported construction materials was not the solution. This resulted in another effect of the initiation of such large number of projects: the real birth of companies producing materials for the building industry. To start with we will discuss the issue of imported construction materials and then deal with the locally manufactured construction materials.

a. Imported Construction Materials

Although the local production of construction materials increased almost every year, demand still exceeded output. This was further evidence of the enormous size of the construction industry in Saudi Arabia. The magnitude of the projects funded by the Government

affected not only the production of construction materials but also the quantities of imported materials. The quantities of imported construction materials varied from year to year depending on construction activities, the availability of financial support and the availability of those materials locally.

In Table (5) the quantities of construction materials which were imported per year are shown. Also Figure (5) shows the variation in the quantities of imported construction materials. The private sector participated in this activity of importing construction materials. Table (6) and figure (6) show the value of and the trends in their participation respectively.

As an example of imported construction materials, cement was one of the materials that were in high demand. Table (7) and figure (7) illustrate the trends in the quantities of cement imported by the country.

Table (5) Quantities of Imported Construction Materials in Tons

Gregorian Year	Hijriah Year	Quantities (tons)
1977	1397/1398	02,829,578
1978	1398/1399	03,572,976
1979	1399/1400	05,280,573
1980	1400/1401	06,108,348
1981	1401/1402	07,564,356
1982	1402/1403	10,765,128
1983	1403/1404	10,825,532
1984	1404/1405	09,269,741
1985	1405/1406	07,693,017
1986	1406/1407	05,630,445
1987	1407/1408	04,153,852
1988	1408/1409	03,450,667
1989	1409/1410	03,092,072
1990	1410/1411	02,898,610
1991	1411/1412	03,048,684
1992	1412/1413	05,056,656
1993	1413/1414	04,761,876

Sources:

1. Statistical Yearbooks (1390-1416AH)

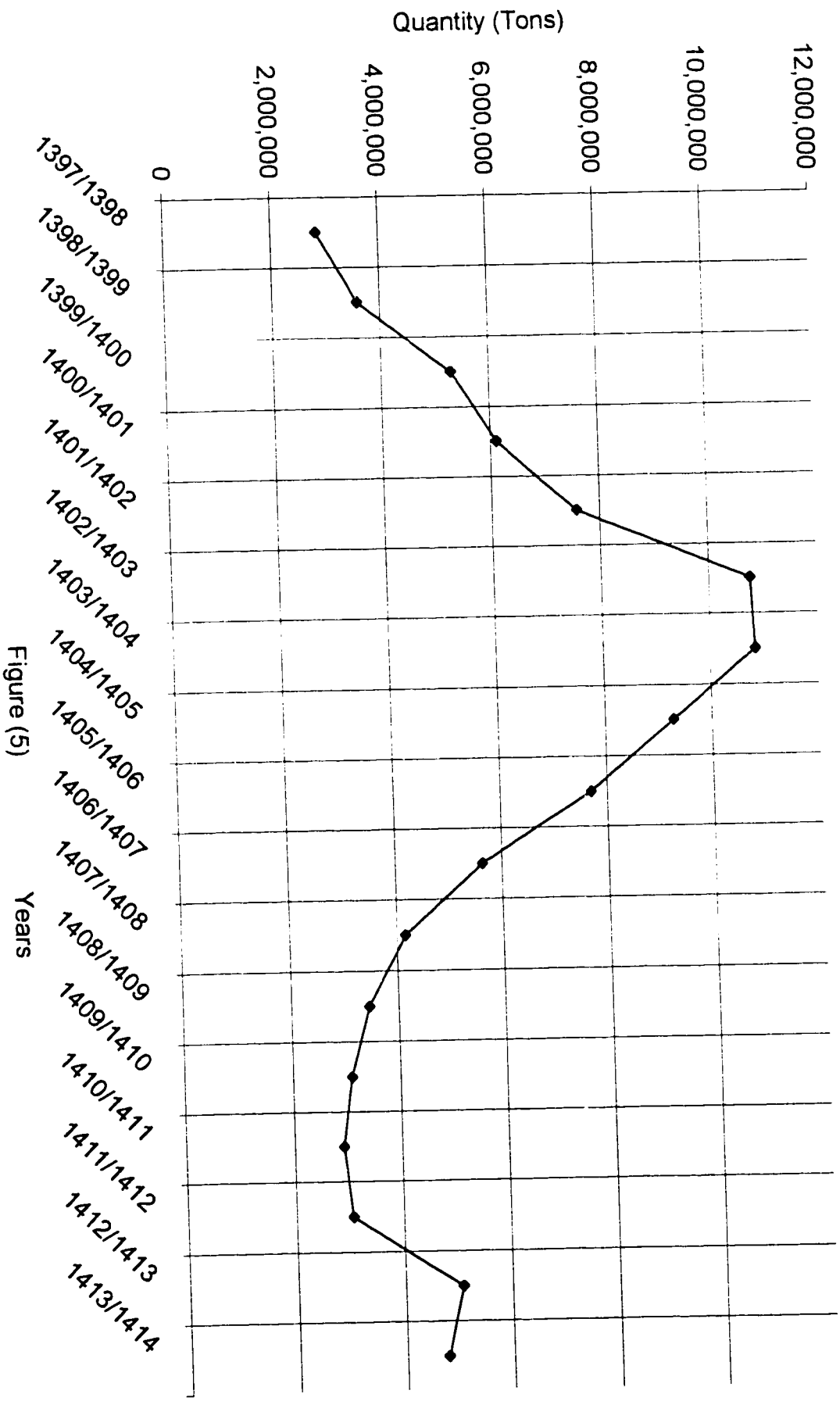

Quantities of Imported Construction Materials
Quantity (Tons)
0
2,000,000
4,000,000
6,000,000
8,000,000
10,000,000
12,000,000
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
Years

Figure (5)

Table (6) Value of Imported Construction Materials for Private Sector

Gregorian Year	Hijriah Year	Value (SR.)
1970	1390/1391	0,152,000,000
1971	1391/1392	0,201,000,000
1972	1392/1393	0,349,000,000
1973	1393/1394	0,696,000,000
1974	1394/1395	0,758,000,000
1975	1395/1396	1,318,000,000
1976	1396/1397	2,500,000,000
1977	1397/1398	2,626,000,000
1978	1398/1399	3,280,000,000
1979	1399/1400	5,617,000,000
1980	1400/1401	5,861,000,000
1981	1401/1402	6,873,000,000
1982	1402/1403	8,837,000,000
1983	1403/1404	6,976,000,000
1984	1404/1405	6,173,000,000
1985	1405/1406	4,887,000,000
1986	1406/1407	4,314,000,000
1987	1407/1408	3,872,000,000
1988	1408/1409	4,226,000,000
1989	1409/1410	4,196,000,000
1990	1410/1411	3,677,000,000
1991	1411/1412	4,371,000,000
1992	1412/1413	5,258,000,000
1993	1413/1414	5,301,000,000
1994	1414/1415	4,286,000,000

Sources:

1. Statistical Yearbooks (1390-1416AH)
2. Annual Reports of the Saudi Arabian Monetary Agency

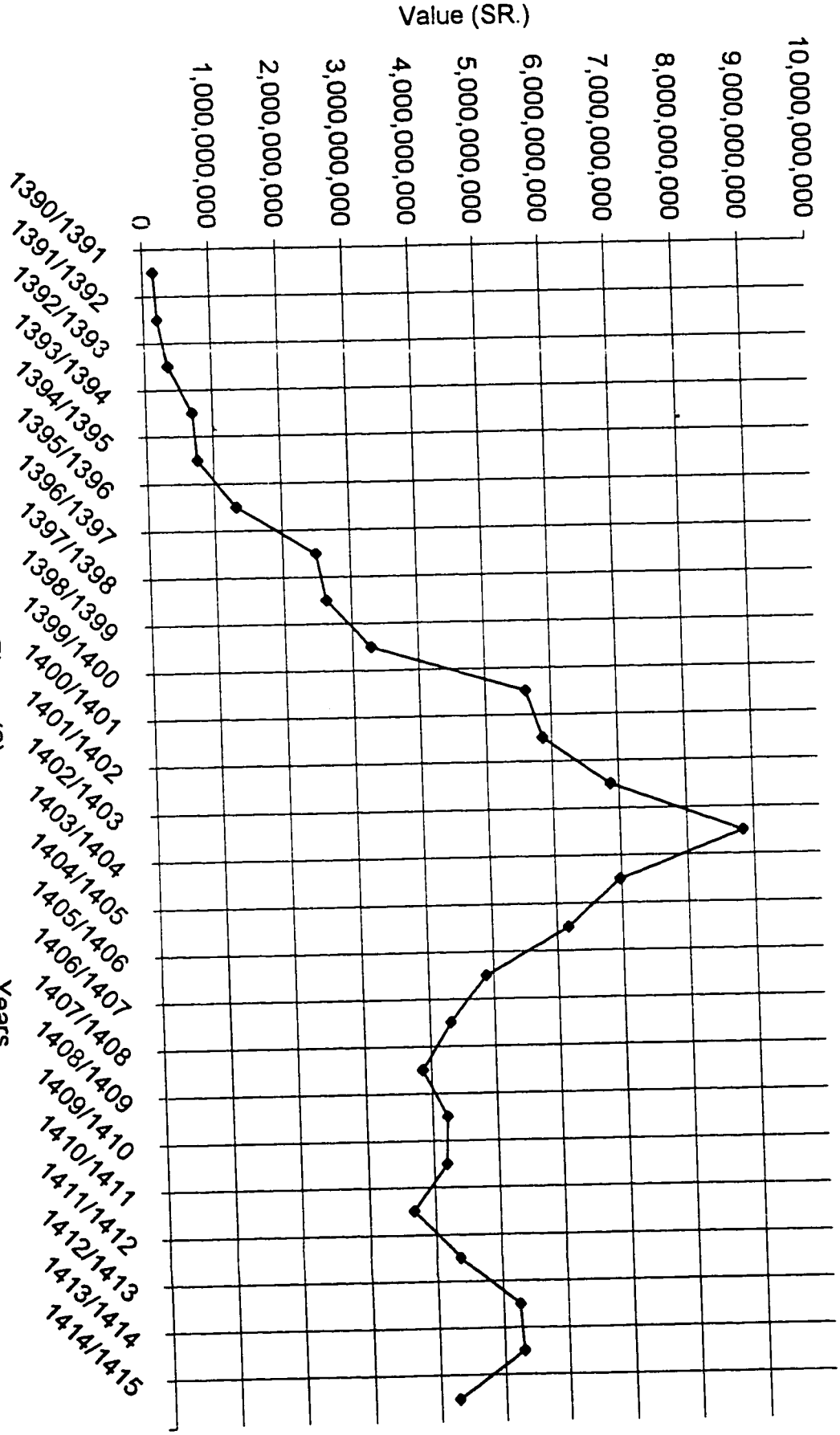

Value of Imported Construction Materials for Private Sector
Value (SR.)
10,000,000,000
9,000,000,000
8,000,000,000
7,000,000,000
6,000,000,000
5,000,000,000
4,000,000,000
3,000,000,000
2,000,000,000
1,000,000,000
0
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years

Figure (6)

Table (7) Quantities of Imported Cement in Tons (1390AH-1415AH)

Gregorian Year	Hijriah Year	Quantities (tons)
1970	1390/1391	00,280,778
1971	1391/1392	00,537,631
1972	1392/1393	00,330,400
1973	1393/1394	00,340,609
1974	1394/1395	00,757,208
1975	1395/1396	01,965,979
1976	1396/1397	02,994,098
1977	1397/1398	07,221,611
1978	1398/1399	07,903,031
1979	1399/1400	08,672,769
1980	1400/1401	10,350,720
1981	1401/1402	10,010,803
1982	1402/1403	10,633,848
1983	1403/1404	14,124,315
1984	1404/1405	13,696,777
1985	1405/1406	07,529,705
1986	1406/1407	04,959,631
1987	1407/1408	03,900,611
1988	1408/1409	01,487,690
1989	1409/1410	00,180,701
1990	1410/1411	00,227,864
1991	1411/1412	00,149,625
1992	1412/1413	00,209,624
1993	1413/1414	01,522,696

Sources:

1. Statistical Yearbooks (1390-1416AH)

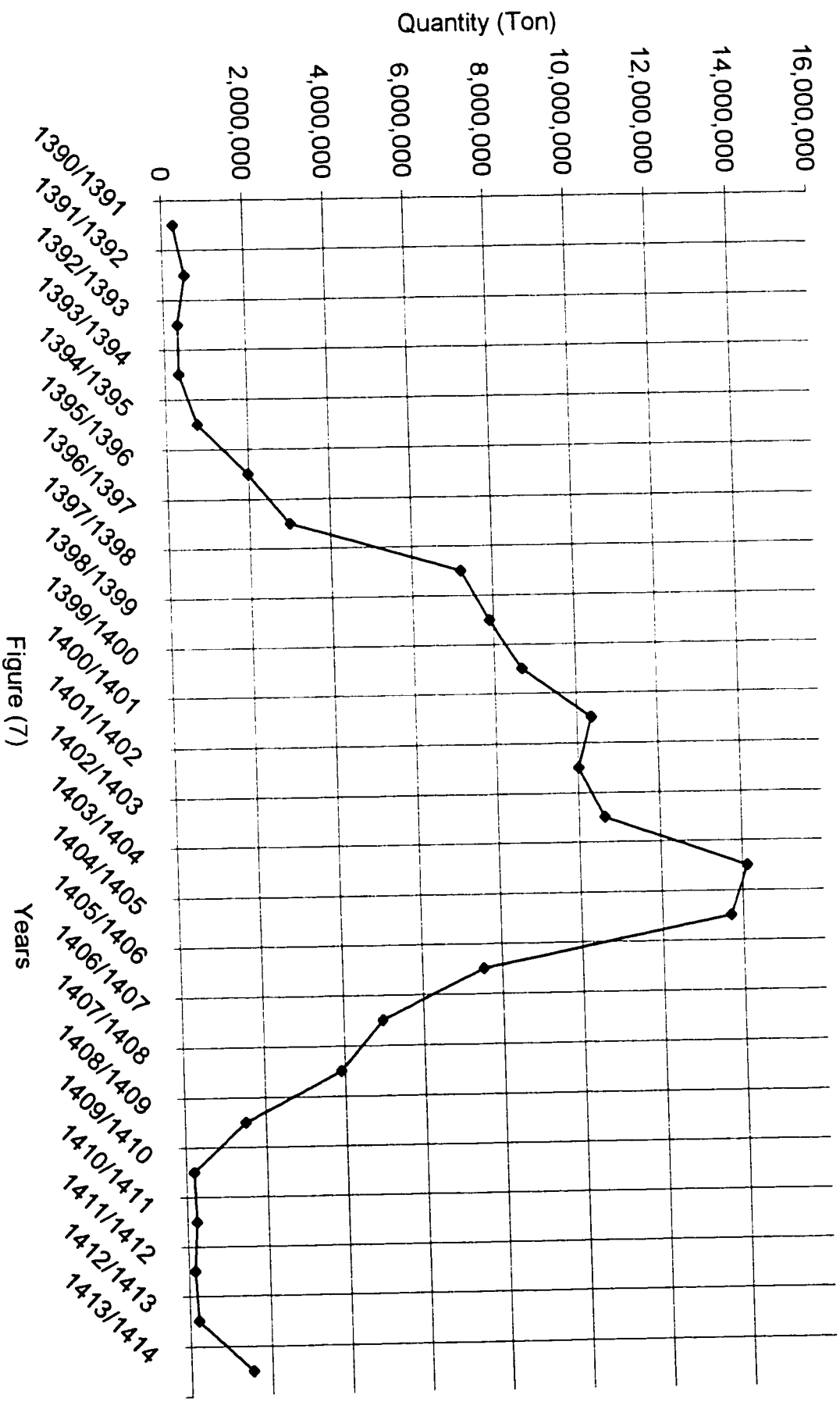

Quantities of Imported Cement in Tons
Quantity (Ton)
16,000,000
14,000,000
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
0
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
Years

Figure (7)

b. Manufactured Construction Materials

Construction materials industries have existed in the kingdom for many years but in the past these were on a very small scale. The large number of projects, initiated after the sharp increase in oil prices back in the early seventies, accounts for the dramatic growth in this sector.

Cement production was one of those industries that were formerly small in scale. The demand for this material was greater than the locally manufactured quantities. The continuous increase in the production of cement as shown in table (8) and figure (8) was therefore to be expected.

Production of gypsum and plaster was another sector that was affected by the magnitude and the quantity of projects initiated by government, semi-government companies and the private sector.

Table (8) Production of Cement in Tons (1390AH-1415AH)

Gregorian Year	Hijriah Year	Quantities (tons)
1970	1390/1391	00,703,371
1971	1391/1392	00,910,375
1972	1392/1393	00,962,174
1973	1393/1394	01,056,303
1974	1394/1395	01,140,399
1975	1395/1396	01,103,918
1976	1396/1397	01,266,814
1977	1397/1398	01,637,795
1978	1398/1399	02,674,120
1979	1399/1400	02,887,796
1980	1400/1401	04,236,897
1981	1401/1402	05,562,317
1982	1402/1403	07,080,646
1983	1403/1404	08,171,275
1984	1404/1405	07,849,775
1985	1405/1406	09,700,395
1986	1406/1407	09,265,216
1987	1407/1408	08,594,593
1988	1408/1409	10,950,641
1989	1409/1410	11,442,357
1990	1410/1411	10,309,027
1991	1411/1412	10,797,317
1992	1412/1413	12,692,984
1993	1413/1414	16,583,565
1994	1414/1415	17,012,815

Sources:

1. Statistical Yearbooks (1390-1416AH)

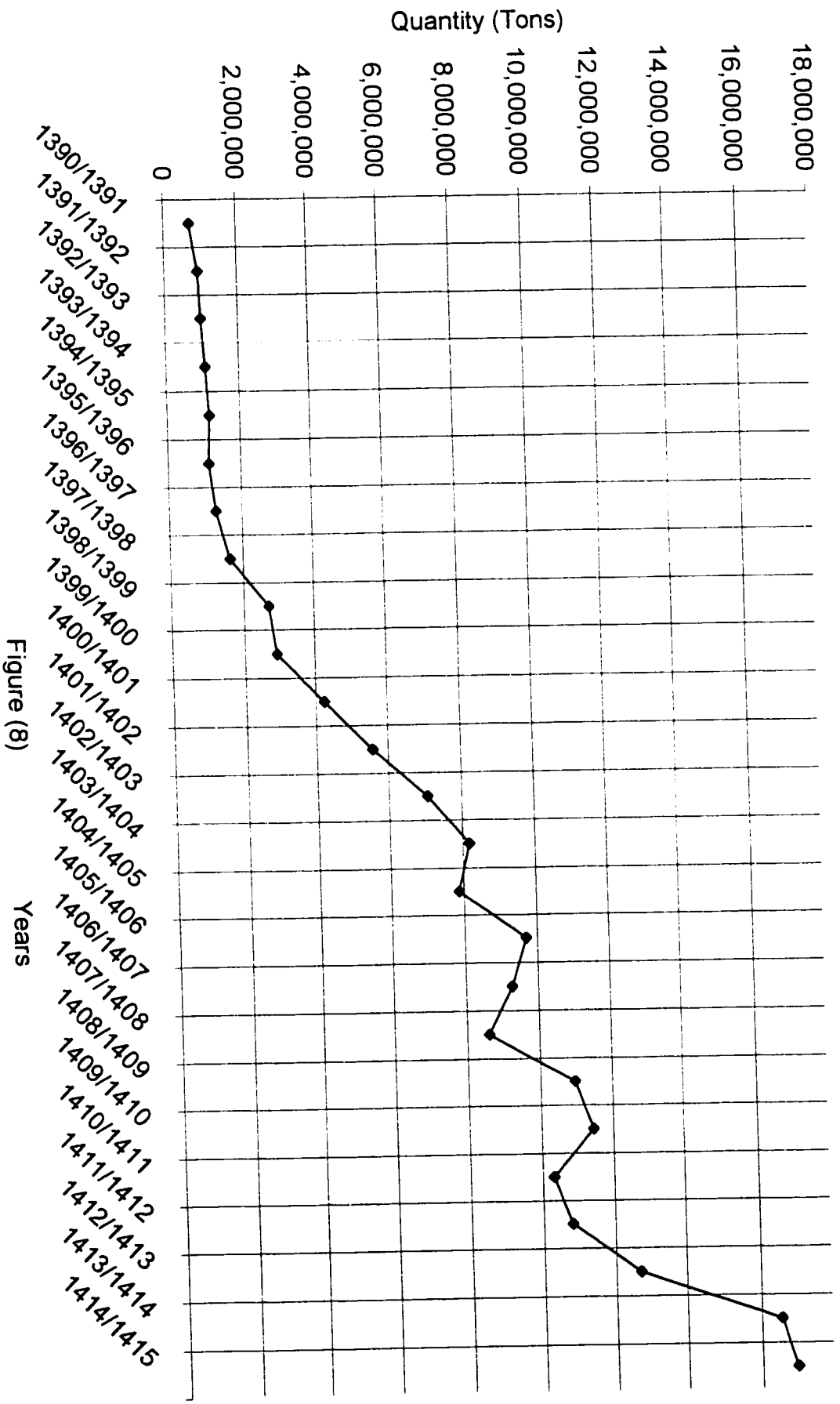

Production of Cement per Year
Quantity (Tons)
0
2,000,000
4,000,000
6,000,000
8,000,000
10,000,000
12,000,000
14,000,000
16,000,000
18,000,000
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years

Figure (8)

The demand for gypsum and plaster increased every year as shown in table (9) and figure (9).

Although the production of lime, another construction material, ceased in 1405AH (1984), the total production between 1390 and 1405AH was about 259,113 tons. [Statistical Yearbooks (1390-1406AH)] From table (10) and figure (10) it may be seen that production during the two years before the company ceased production was at a peak with 30,801 tons and 33,906 tons respectively. Figure (10) shows the trends in lime production over the years.

Table (9) Production of Gypsum & Plaster in Tons (1390AH- 1415AH)

Gregorian Year	Hijriah Year	Quantities (tons)
1970	1390/1391	030,000
1971	1391/1392	033,183
1972	1392/1393	034,053
1973	1393/1394	031,421
1974	1394/1395	045,455
1975	1395/1396	052,799
1976	1396/1397	054,015
1977	1397/1398	068,206
1978	1398/1399	085,420
1979	1399/1400	088,050
1980	1400/1401	102,005
1981	1401/1402	096,983
1982	1402/1403	146,191
1983	1403/1404	155,134
1984	1404/1405	156,941
1985	1405/1406	142,125
1986	1406/1407	136,017
1987	1407/1408	151,622
1988	1408/1409	160,092
1989	1409/1410	171,297
1990	1410/1411	167,074
1991	1411/1412	174,944
1992	1412/1413	269,298
1993	1413/1414	322,783
1994	1414/1415	338,147

Sources:

1. Statistical Yearbooks (1390-1416AH)

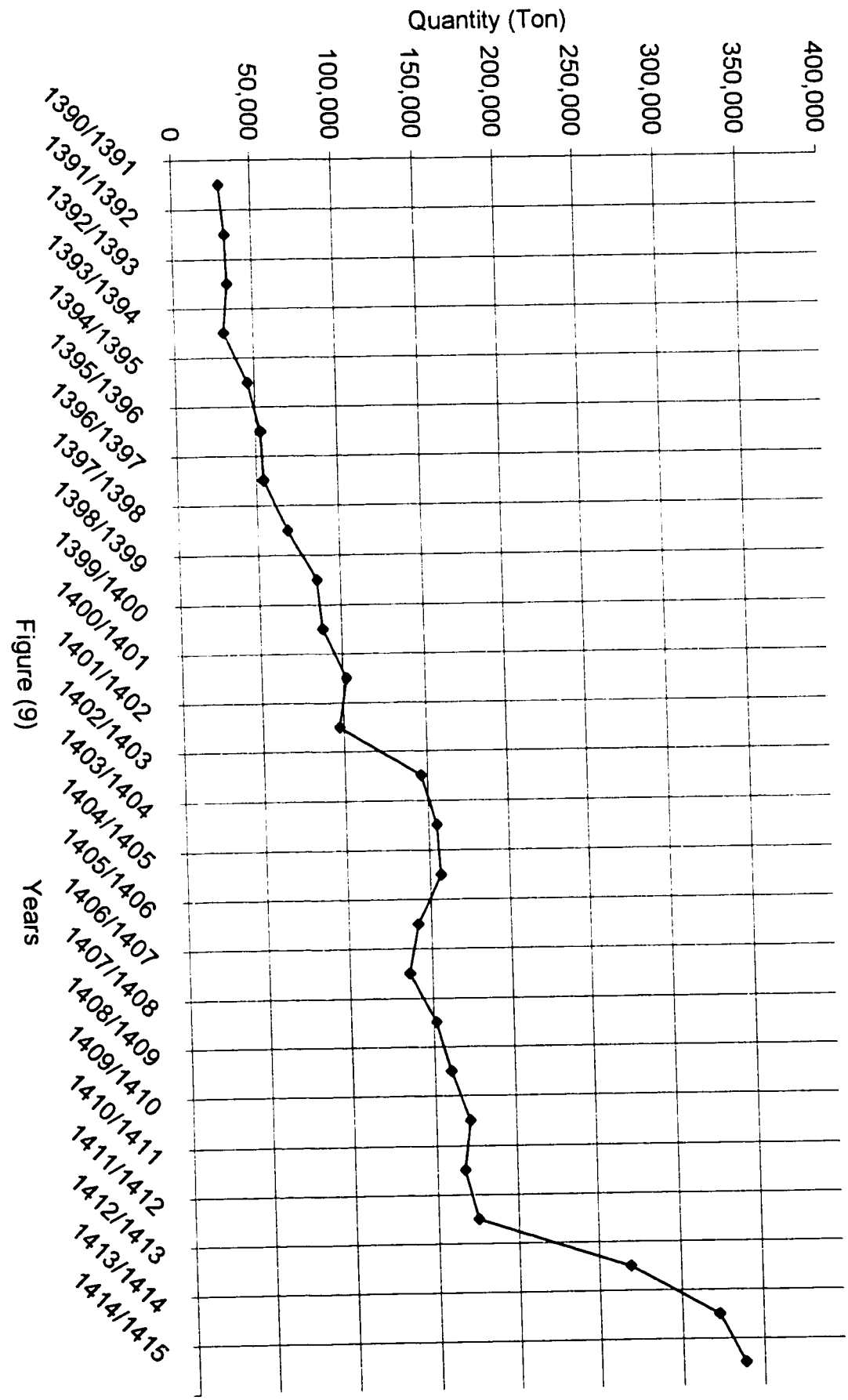

Production of Gypsum & Plaster
Quantity (Ton)
0
50,000
100,000
150,000
200,000
250,000
300,000
350,000
400,000
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years

Figure (9)

Table (10) Total Production of Lime in Tons (1390AH-1405AH)

Gregorian Year	Hijriah Year	Quantities (tons)
1970	1390/1391	08,777
1971	1391/1392	12,024
1972	1392/1393	11,976
1973	1393/1394	10,801
1974	1394/1395	11,391
1975	1395/1396	09,558
1976	1396/1397	06,910
1977	1397/1398	14,910
1978	1398/1399	25,404
1979	1399/1400	29,046
1980	1400/1401	27,789
1981	1401/1402	25,820
1982	1402/1403	30,801
1983	1403/1404	33,906

Sources:

1. Statistical Yearbooks (1390-1416AH)

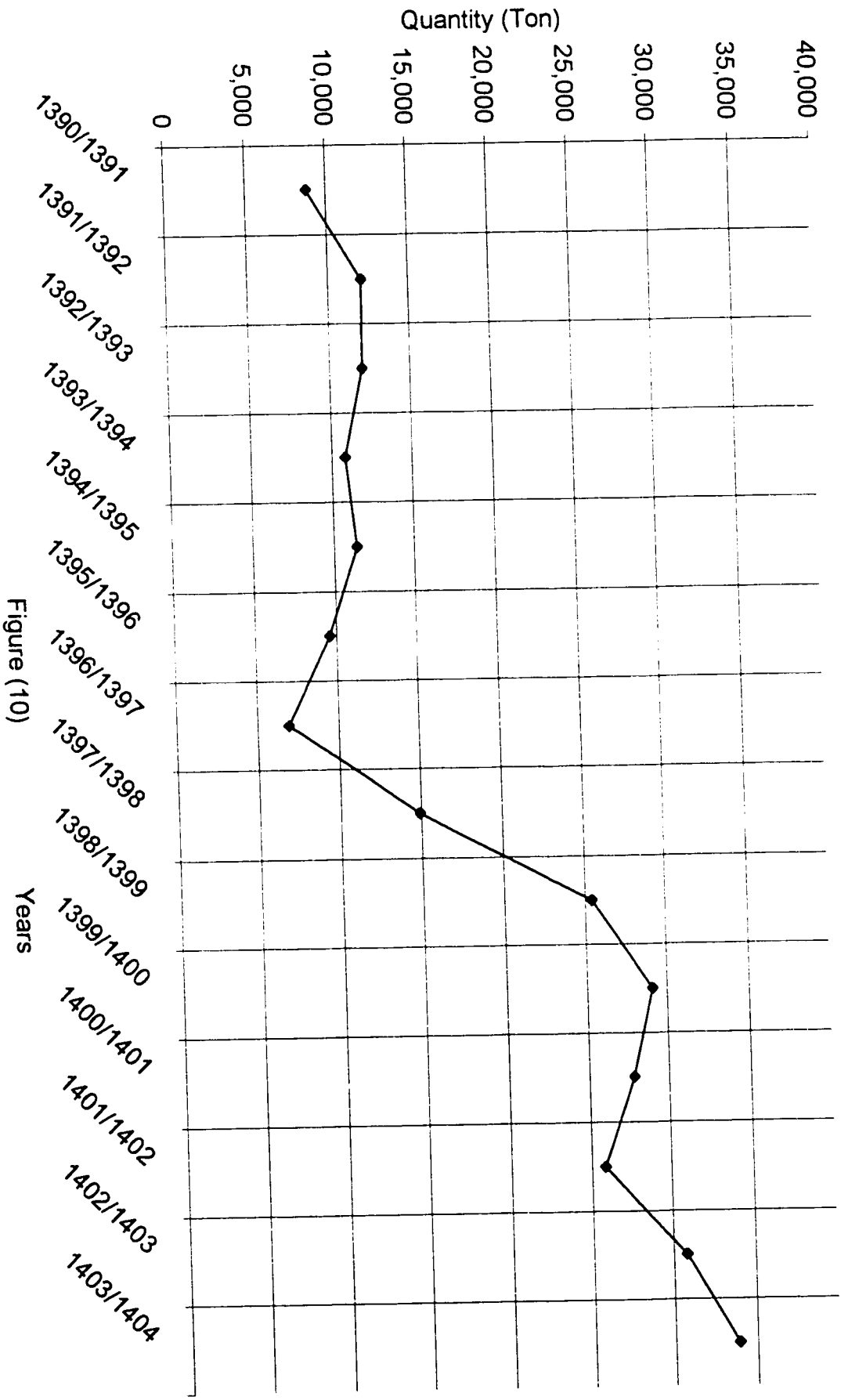

Production of Lime
Quantity (Ton)
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
Years

Figure (10)

2.2.4 CONSTRUCTION ACHIEVEMENTS

There was a stage when the construction industry went through a revolution with both the Government and the private sectors fully involved in construction activities. The result of these efforts was quite incredible. The country was transformed from one with only the most basic elements of an infrastructure to a nation with a modern, sophisticated system.

The infrastructure is made up of many components, such as the railways, the telephone system, dams, water desalination plants, seaports and airports. The data associated with the construction of these components will be presented in the following section.

Railways

The construction of the existing railway between Dammam and Riyadh started in 1366AH and was completed in 1371AH (1947-1952). [ALYAUM Jan.10, 1995] In Saudi Arabia traveling by train is as

important as traveling by other means of transport. In 1415/1416AH (468,000) passengers used rail as a means of transportation. [The Annual Report of the Saudi Arabian Monetary Agency, 1417/1418AH (1997)]

The rail link is only between Dammam in the Eastern Province and Riyadh in the Central Province, including a few towns in between. It is used to transport passengers as well as goods. It is cheaper and safer for businessmen to transport their goods by train rather than using other means of transportation. In 1415/1416AH 1,580 tons of goods were transported by rail. [The Annual Report of the Saudi Arabian Monetary Agency, 1417/1418AH (1997)]

In the past, there was a railway going from the Western Province of Saudi Arabia all the way to Turkey, which was used to transport pilgrims. It was damaged by a series of natural events over the years. The government did not bother to rebuild it because it was not economically feasible to do so.

The government may extend the rail system to include other towns and cities. It is planning to construct one line between Jubail and the existing railways net and another line that would connect Shedgum and Uthmaniah with the existing net. [The Annual Report of the Saudi Arabian Monetary Agency 1411/1412AH (1991)]

In addition, maintaining the existing railways is another target for the Government with regard to railway business in the meantime.

Communication System

Over the years, the Government has carried the load of providing the communication services through financing lots of projects for this sector. The communication sector is an essential one, with the following components:

1. Telephone system

2. Telexes

3. Post offices

The communication system is as important as other types of services. Establishing many telephone lines and telexes and building as many post offices was the trend for this sector.

Prior to the year 1389/1390AH (1970) there were only **31,247** telephone lines in operation. [Statistical Year Book, 1391/1392 (1971)] During the First Development Plan the total number of telephone lines in operation rose to **94,247** lines. By the end of the year 1399/1400AH (1980), the Government had already put in service a total of **277,288** telephone lines. By the year 1404/1405AH, the total number of telephone lines in operation had jumped to a total of **927,803** lines. At the end of the Fourth Development Plan the total number of telephone lines in service was about **1,201,100** lines. In 1414/1415AH the total number became **1,583,959** telephone lines in service. Finally, in 1415/1416, the Ministry was planning to add more telephone lines. Their plan was to add **1.5 million** telephone lines and **200,000** mobile phones, and install a fiber optics net all over the kingdom. The total

cost for this plan was estimated to be about **SR.16 billion**. [The Annual Report of the Saudi Arabian Monetary Agency 1416/1417 (1997)]

However, demand for telex services started to decline within only a few years, as the more convenient fax system became available. The Government had established 30,000 lines for telex services. [The Annual Reports of the Saudi Arabian Monetary Agency] However, the demand for this service did not go beyond the established number. On the contrary, the number of lines cancelled by users is increasing everyday.

Finally, government paid equal attention to the establishment of post offices as they paid to the other department of the communication sector. Up to the year 1402/1403AH (1982), the Government had managed to establish a total of **586** post offices. Government did not stop at that point but continued the effort to build more post offices. In 1406/1407AH (1986) the total number of post offices became **603** and

in 1415/1416 (1995) the total became **626** post offices. [The Annual Reports of the Saudi Arabian Monetary Agency]

Seaports

The high demand for constructing seaports was one of the results of the rush by the Government of Saudi Arabia to develop the country. The quantities of goods that were imported to the Kingdom were beyond the capacity of the seaports at that time (the early seventies). Government had to take action to relieve that problem. They carried out the activity of expanding the existing seaports and in some cases constructed new seaports.

In 1395/1396AH (1975), as mentioned at the annual reports of the Saudi Arabian Monetary Agency, there were only 27 berths in service all over the kingdom. Six years later the total number of berths had increased fourfold to 101 berths. This was the result of the big effort by the Government to resolve the problem of the backlog of ships waiting to unload. The Government did not stop at that point. Up to

1403/1404AH (1983), the Government managed to construct 20 berths in addition to the existing ones. In 1410/1411AH (1990), there were about 174 berths in service. In 1415/1416AH (1995) the total number of berths rose to 182. There were one hundred thirty seven berths divided among the following commercial seaports:

1. Jeddah Islamic Port

2. King Abdulaziz Port

3. Jubail Commercial Port

4. Jaizan Port

5. Yanbu Commercial Port

6. Dubba Port

The remainder of the 182 berths was divided between King Fahd Industrial Port in Jubail (23) and King Fahd Industrial Port in Yanbu (22). [Achievements of the Development Plans 1390-1416 (1970-1995)]

Airports

The Government was aware of the importance of airports. Building as many airports as were required was one of the priorities of the Government. Since building an airport was extremely expensive, the Government made extensive studies before appropriating any money for airport projects. The Government had built 22 airports by the year 1400/1401AH (1980). By 1403/1404AH (1984), the total number of airports built by Government was 23. [Annual Report of the Saudi Arabian Monetary Agency, 1404/1405AH (1984)]

The Government built three (3) international airports, in Riyadh, Jeddah and Dhahran and built seven (7) regional airports in:

1. Ta'if
2. Madinah
3. Abha
4. Jizan

5. Qasim

6. Tabuk

7. Ha'il

Moreover, the government built thirteen (13) domestic airports in the following cities:

1. Najran

2. Yanbu

3. Bisha

4. Al-Jawf

5. Al-Ahsa

6. Baha

7. Ar'ar

8. Sharourah

9. Qurrayat

10. Al-Wajh

11. Al-Qaysumah

12. Turayaf

13. Rafha

This shows the effort and the money spent by the government in order to construct all the needed airports. There is still continuity in this regard. The Government had already completed construction of 25 airports by 1413/1414AH (1994) including King Fahd Airport 36 Km northwest of Dammam.

Water Desalination Plants

The Government had to spend vast amounts of money on the projects undertaken for the Ministry Agriculture and Water especially involving water projects. In the absence of sufficient supplies from more conventional sources, the Government was forced to turn to

desalination. This method is extremely expensive, but the Government had no choice, and Saudi Arabia now produces more drinking water from seawater than any other country. In 1390/1391AH (1970) there were only three water desalination plants. In 1398/1399AH (1978), the total number of water desalination plants was seven. It was like that until 1403/1404 (1983) when the total number became twelve water desalination plants. In the year 1414/1415 (1995) the Government had already built fourteen water desalination plants that can produce 715,600,000 cubic meter of water. [The Saline Water Conversion Corporation] Table (11) and figure (11) show the trends in the construction of water desalination plants.

In Saudi Arabia, billions of Riyals were spent in order to construct water desalination plants. Producing sweet water is very expensive. " The Government so far (1982) has spent SR. 25 billion in water-desalination plants and related projects; another SR. 7.0 billion will be spent soon, and that does not include plants for Saudi Aramco, the Ministry of Defense and the Ministry of Agriculture." [Elmalakh]

Table (11) The Rate of Growth in the Construction of Water Desalination Plants

Hijriah Year	Quantity
1390/1391	03
1393/1394	05
1398/1399	07
1403/1404	12
1408/1409	14

Source: The Annual Report of Saudi Arabian Monetary Agency (1415/1416AH)

Rate of Growth in the Construction of Water Desalination Plants

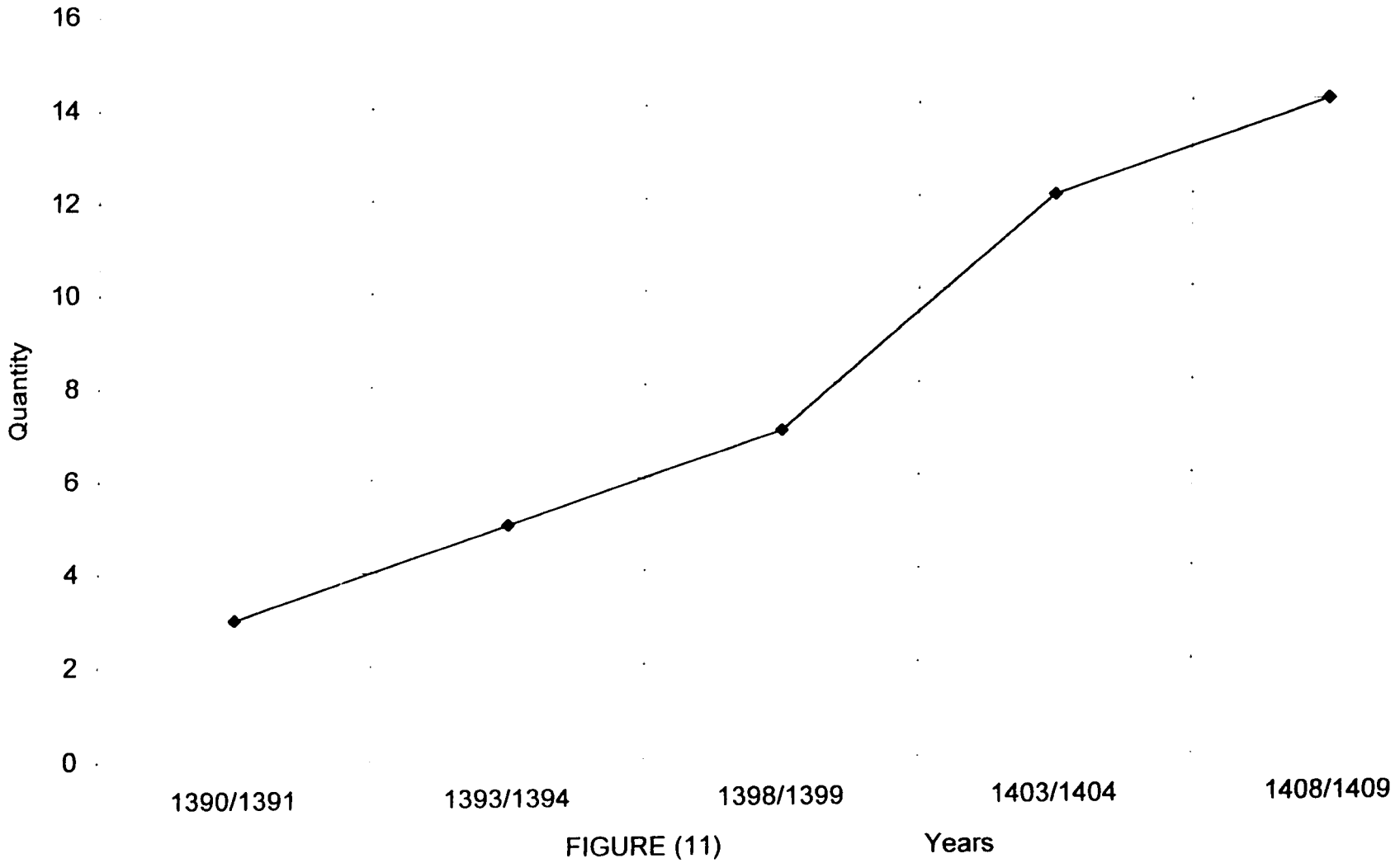


FIGURE (11)

Dams

In addition to the vast amounts of money spent on water desalination plants, the Government over the years spent billions of Saudi Riyals to construct dams. In an article in OKAZ newspaper on May 06, 1998, Dr. Abdullah bin Abdulaziz bin Moammer mentioned that the Government had built up to the date of the article one hundred eighty six (186) dams. These dams hold approximately seven hundred seventy five million cubic meter of water. The cost of such dams was about SR. 2,700,000,000.

2.2.5 ACHIEVEMENTS IN ROAD CONSTRUCTION

Construction of roads has been one of the most challenging activities in the Kingdom because of the topography of the country, which are mainly desert and volcanic mountains, and the harsh climatic conditions. These factors made this activity costly and very challenging.

In Saudi Arabia moving desert is a problem for any type of project, and the construction of roads was no exception. To construct roads

through this type of desert was a challenge for any one. Contractors had to bid high in order to build this type of project as they had to take into account the high cost of stabilizing the surrounding area close to the work site.

On the other hand, the mountains that occupy the northwestern and southwestern parts of the kingdom were composed of igneous type of rocks, which were very hard to excavate through. The cost of constructing roads through this type of terrain was also extremely high, as it needed special equipment and skilled labor and involved high risks.

Building these roads required a great deal of effort from everyone involved in the project, yet the achievements were excellent. The total length of paved roads built in the period up to 1415/1416AH (1995) was 42,300 Km as stated in the Annual Report of the Saudi Arabian Monetary Agency of 1416/1417AH (1996). Moreover, the total length of earth-surfaced roads that were built in the same period was about 96,000 Km as mentioned in the same report. The cost of constructing

both types of roads amounted to hundreds of billions of Saudi Riyals. In an article in ALYAUM newspaper about the length and the cost of the road network in the Kingdom, it was written that:

"The total length of both types of roads, paved and earth-surfaced roads constructed up to the year 1414/1415AH (1995) was approximately 138,190 Km. The cost was close to SR.130.8 billion". [ALYAUM, April 13,1996]

Prior to the year 1389/1390AH (1969) the total length of paved roads was approximately 7,500 KM only. [The Saudi Arabian Monetary Agency Annual Report, 1415/1416AH.] In twenty five years (1390-1415AH), all Government agencies that were involved in the road construction managed to construct 35,200 Km of paved roads, averaging 1,400 Km of road construction per year. The actual length of road built every year is shown in table (12) and represented by figure (12).

These figures differ because of the following:

1. Availability of financial resources

2. The need for such projects

3. Priorities of agencies involved in road building

In some cases the urgent need for paved roads projects would force the agencies involved to change their priorities. Sometimes the financial resources were available but the priorities were for projects other than paved roads, so building roads was affected primarily by those three factors.

On the other hand, building earth-surfaced roads was not as difficult or as expensive as building paved roads.

In Saudi Arabia, in 1389/1390AH (1969), the total length of earth-surfaced roads was about seven thousand five hundred kilometers 7,500 Km. In 1414/1415AH (1995) the total length amounted to 96,000 Km. [The Saudi Arabian Monetary Agency Annual Report, 1415/1416AH.]

The construction of earth-surfaced roads since the year 1390/1391AH (1970) was on average approximately three thousand five hundred kilometers per year (3,500 Km/year). In table (13) the total lengths of earth-surfaced roads built each year are shown. These figures represent the need, the financial capabilities and the priorities of such projects for all agencies involved in this type of construction. Figure (13) shows the trends in the construction of the earth-surfaced roads. From the figure it is apparent that construction peaked in 1409/1410AH (1990) (7,500 Km/year).

Table (12) Length of Paved Roads Built from 1390/1391AH to 1414/1415AH

Gregorian Year	Hijriah Year	Length (Km)
1970	1390/1391	0,302
1971	1391/1392	0,291
1972	1392/1393	0,353
1973	1393/1394	0,963
1974	1394/1395	1,583
1975	1395/1396	1,877
1976	1396/1397	1,918
1977	1397/1398	2,162
1978	1398/1399	1,700
1979	1399/1400	1,338
1980	1400/1401	0,916
1981	1401/1402	1,298
1982	1402/1403	2,248
1983	1403/1404	1,717
1984	1404/1405	1,760
1985	1405/1406	1,005
1986	1406/1407	0,778
1987	1407/1408	2,137
1988	1408/1409	0,546
1989	1409/1410	1,471
1990	1410/1411	0,892
1991	1411/1412	1,120
1992	1412/1413	1,352
1993	1413/1414	0,934
1994	1414/1415	0,838

Sources:

1. Statistical Yearbooks (1390-1416AH)
2. Annual Report of the Saudi Arabian Monetary Agency
3. Achievements of the Development Plans 1390-1415AH (1970-1995)

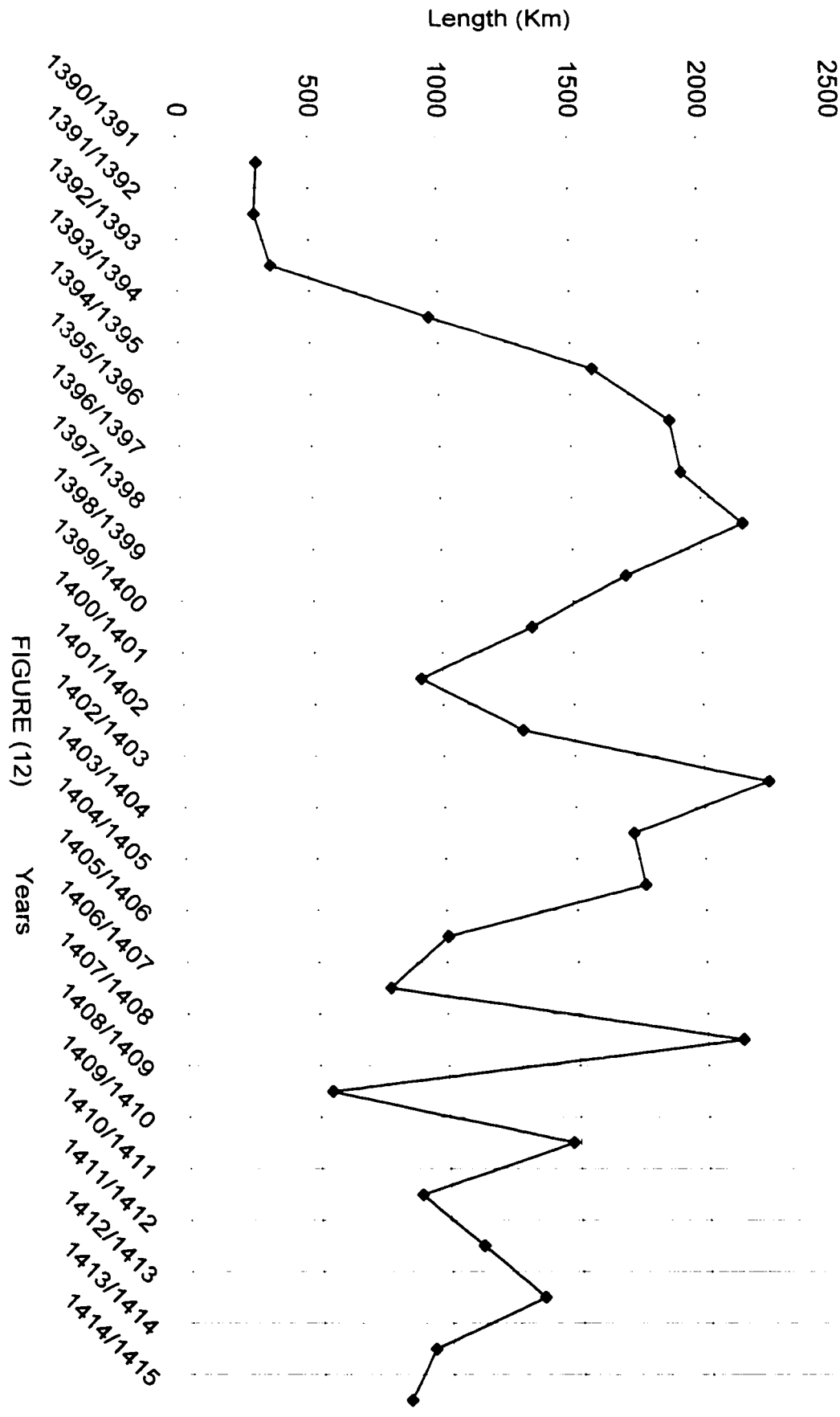

Length of Paved Roads Built per Year (Km)
Length (Km)
2500
2000
1500
1000
500
0
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years

FIGURE (12)

Table (13) Length of Earth-Surface Roads Built from 1390/1391AH to 1414/1415AH

Gregorian Year	Hijriah Year	Length (Km)
1970	1390/1391	0,687
1971	1391/1392	0,789
1972	1392/1393	0,780
1973	1393/1394	1,027
1974	1394/1395	1,740
1975	1395/1396	2,683
1976	1396/1397	2,114
1977	1397/1398	3,641
1978	1398/1399	3,171
1979	1399/1400	4,076
1980	1400/1401	4,401
1981	1401/1402	4,049
1982	1402/1403	5,334
1983	1403/1404	6,468
1984	1404/1405	5,390
1985	1405/1406	2,000
1986	1406/1407	4,006
1987	1407/1408	4,945
1988	1408/1409	4,772
1989	1409/1410	7,500
1990	1410/1411	6,451
1991	1411/1412	5,733
1992	1412/1413	3,898
1993	1413/1414	3,618
1994	1414/1415	3,908

Sources:

1. Statistical Yearbooks (1390-1416AH)
2. Annual Report of the Saudi Arabian Monetary Agency
3. Achievements of the Development Plans 1390-1415AH (1970-1995)

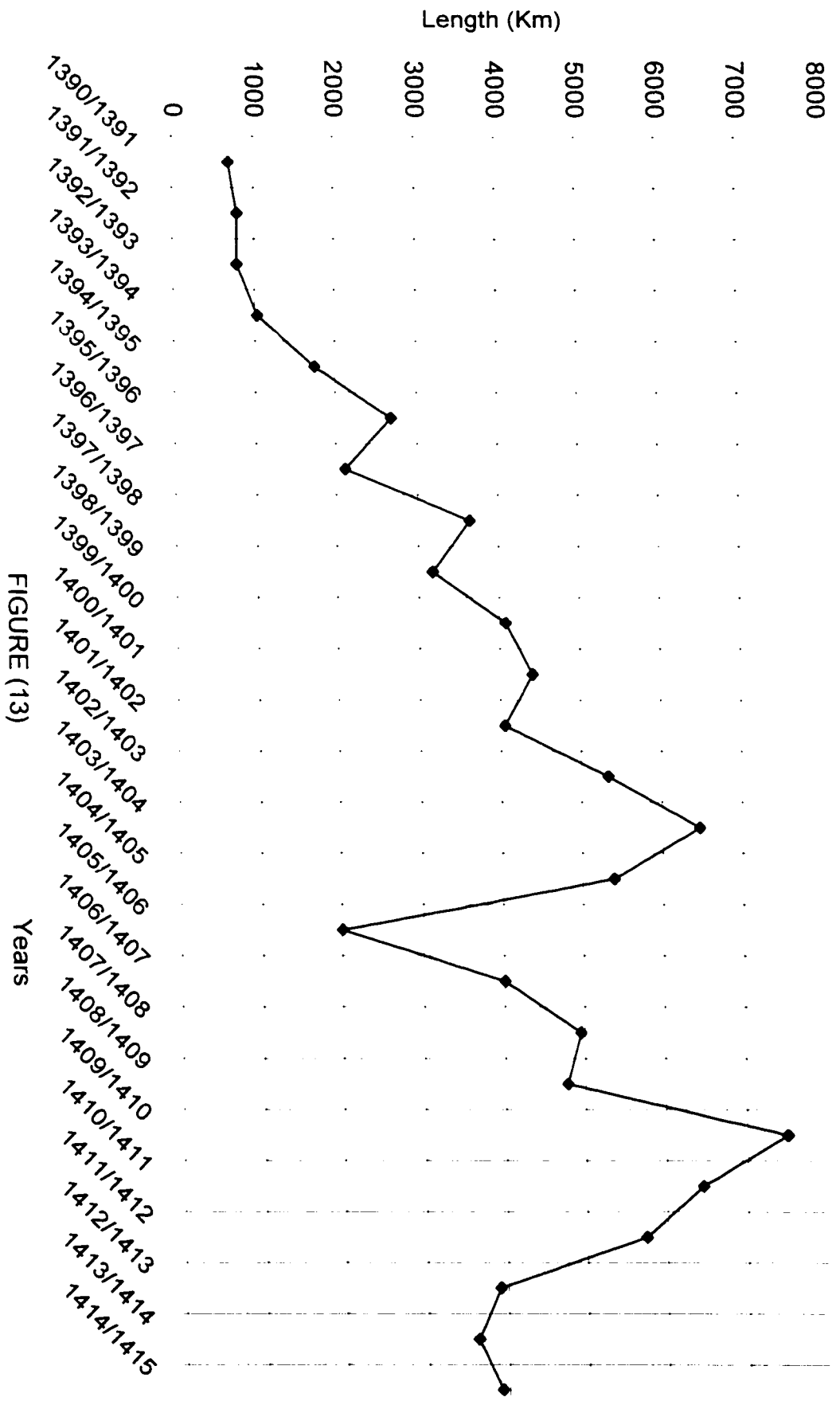

Length of Earth-Surfaced Roads Built per Year
Length (Km)
0
1000
2000
3000
4000
5000
6000
7000
8000
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years

FIGURE (13)

2.2.6 BUILDING PERMITS

Government issued the majority of the construction permits through the Ministry of Municipal and Rural Affairs and the Ministry of Industry and Electricity. Initially, the role of the Ministry of Municipal and Rural Affairs in issuing building permits will be discussed and in a later section the role of the Ministry of Industry & Electricity in issuing Industrial permits will be discussed.

The Ministry of Municipal and Rural Affairs was one of the Government departments that were involved in the regulation process. The municipalities in every city and towns issued thousands of building permits every year. These permits were for construction, alteration, compound walls, residential & commercial buildings, industrial buildings, educational buildings, health buildings, mosques and for social or government buildings. The total number of permits that were issued per year from 1390AH-1415AH (1970-1995) is shown in table (14). [Statistical Year Books] This table and figure (14) show the trends

in permits issued per year. The Municipalities issued a total of 1,291,434 building permits over a period of twenty five years with an average of approximately 51,500 permits per year. These permits were not necessarily all used for construction.

2.2.7 INDUSTRIAL PERMITS

The Ministry of Industry and Electricity was another department that was involved in the regulation process. The Ministry issued industrial permits to the private sector. Building a factory could not take place without the approval of the Ministry. The Ministry as mentioned in the first part of this chapter was responsible for the construction of industrial cities to house all factories within their boundaries. Up to the end of 1396AH (1976) the Ministry issued 864 industrial permits to construct factories. The total investment in these factories was estimated at around SR. 5,219,296,000 [Statistical Yearbook, 1396/1397, (1976)].

Table (14) Building Permits Issued by Ministry of Municipal and Rural Affairs

Gregorian Year	Hijriah Year	Total Permits
1970	1390/1391	14,540
1971	1391/1392	17,097
1972	1392/1393	18,303
1973	1393/1394	27,983
1974	1394/1395	44,650
1975	1395/1396	67,346
1976	1396/1397	70,970
1977	1397/1398	58,597
1978	1398/1399	63,780
1979	1399/1400	83,518
1980	1400/1401	73,230
1981	1401/1402	72,021
1982	1402/1403	77,463
1983	1403/1404	78,884
1984	1404/1405	76,456
1985	1405/1406	63,227
1986	1406/1407	46,038
1987	1407/1408	26,432
1988	1408/1409	31,187
1989	1409/1410	30,166
1990	1410/1411	30,720
1991	1411/1412	46,784
1992	1412/1413	55,689
1993	1413/1414	72,620
1994	1414/1415	43,733

Sources:

1. Statistical Yearbooks (1390-1416AH)

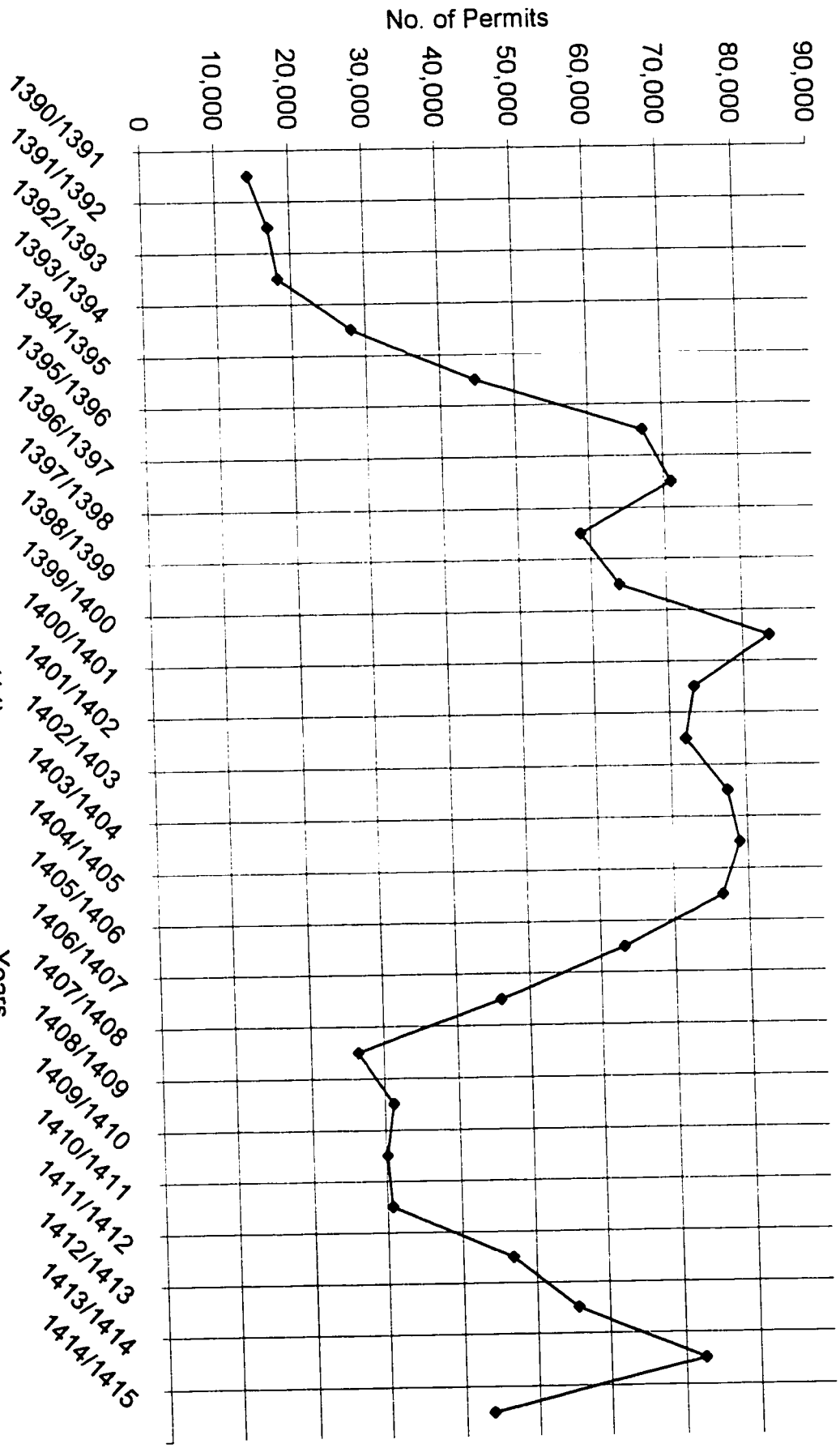

Building Permits Issued by Ministry of Municipal & Rural Affairs
No. of Permits
0
10,000
20,000
30,000
40,000
50,000
60,000
70,000
80,000
90,000
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years

Figure (14)

The total number of workers employed in those factories was about 45,345. In 1401/1402AH (1981) there were about 1373 factories with a total investment of SR. 23,044,237,000 and the total number of workers was about 82,315. [Statistical Yearbook 1403/1404AH] At the end of the year 1414AH (1994) there were about 2,234 factories with a total investment of approximately SR. 151 billion with a total of about 196,022 workers. [Statistical Yearbook 1414AH (1994)]

2.2.8 GOVERNMENT DEPARTMENTS & CONSTRUCTION INDUSTRY

As already mentioned, in this study we present the data for the Government departments that were heavily involved in the construction industry.

It would be extremely difficult to discuss the involvement of each and every department with regard to the construction industry in Saudi Arabia. The records were not sufficient to show every thing about the construction industry. A few departments have been chosen as examples for the study. Where adequate data was found, they have been presented

as part of this study. The following departments were heavily involved and the data for their projects were available.

1. Educational Departments
2. Ministry of Industry and Electricity
3. Ministry of Agriculture & Water
4. Ministry of Health & Red Crescent
5. Communication Departments
6. Ministry of Municipal and Rural Affairs
7. Ministry of Public Works and Housing
8. Presidency of Youth Welfare

2.2.8.1 Projects for Educational Sector

The Educational Sector is one of the most important sectors for any country looking for a better future. Developing this sector was one of the main goals of the Government of Saudi Arabia. It was therefore heavily funded. In addition to money, lots of planning, hard work and

active recruitment of experienced personnel were involved in the projects to develop this sector. The Government was generous with regard to the development of this sector. The Government believes that encouraging education and educated people is a valuable investment that will ensure the development of the country. The Government's commitment to improve the educational facilities has been reaffirmed in the successive development plans in the Kingdom. As a result of this continuing commitment, the education system in the Kingdom has expanded rapidly since 1389/1390AH. Thus the number of schools and colleges under educational institutions has increased from 3,283 in 1389/1390AH to 21,854 in 1415/1416AH as stated in the Achievements of the Development Plans 1390-1416AH (1970-1996) issued by the Ministry of Planning.

The appropriations of the educational projects in the Government budget were on the high side. This would indicate the commitment of the Government to develop this sector. This sector will continue to be

involved in construction for many years to come. The education projects undertaken by the following departments were examined:

1. Ministry of Higher Education
2. Ministry of Education
3. King Abdulaziz University
4. King Saud (Riyadh) University
5. King Faisal University
6. King Fahad University
7. Islamic University
8. Umm-Ul-Qura University
9. Islamic University of Al-Emam Mohammed Ibn Saud
10. Presidency of Girls' education
11. Girls' Colleges

12. Thaghr Schools in Jeddah

13. Al-Asma Model Institute

14. Technical Education and Vocational Training

The appropriation and trends of the constructed projects for the educational sector in the Government budget can be seen in Table (15) and Figure (15) respectively. A total of approximately SR. 100 billion was the appropriation over a period of twenty five years. We assumed the actual cost of construction for educational departments to be 75% of the appropriated values. In this case if our assumption is right, then the Government spent approximately SR. 75 billions in twenty five years for construction within these departments, with an annual average of SR.3 billion.

Table (15) The Appropriation for Educational Projects

Gregorian Year	Hijriah Year	Education Projects
1970	1390/1391	00,072,879,000
1971	1391/1392	00,145,000,000
1972	1392/1393	00,298,000,000
1973	1393/1394	00,687,000,000
1974	1394/1395	01,611,000,000
1975	1395/1396	07,412,000,000
1976	1396/1397	08,169,728,000
1977	1397/1398	07,861,195,000
1978	1398/1399	05,071,769,000
1979	1399/1400	06,809,033,000
1980	1400/1401	07,679,898,000
1981	1401/1402	08,346,330,000
1982	1402/1403	10,069,300,000
1983	1403/1404	06,279,500,000
1984	1404/1405	08,004,300,000
1985	1405/1406	04,127,200,000
1986	1406/1407	04,127,200,000
1987	1407/1408	02,754,200,000
1988	1408/1409	02,008,200,000
1989	1409/1410	01,408,400,000
1990	1410/1411	01,342,900,000
1991	1411/1412	01,552,300,000
1992	1412/1413	01,287,400,000
1993	1413/1414	01,792,300,000
1994	1414/1415	01,232,800,000

Sources:

1. Statistical Yearbooks (1390-1416AH)
2. Annual Report of the Saudi Arabian Monetary Agency
3. Achievements of the Development Plans 1390-1415AH (1970-1995)
4. Fifth Development Plan

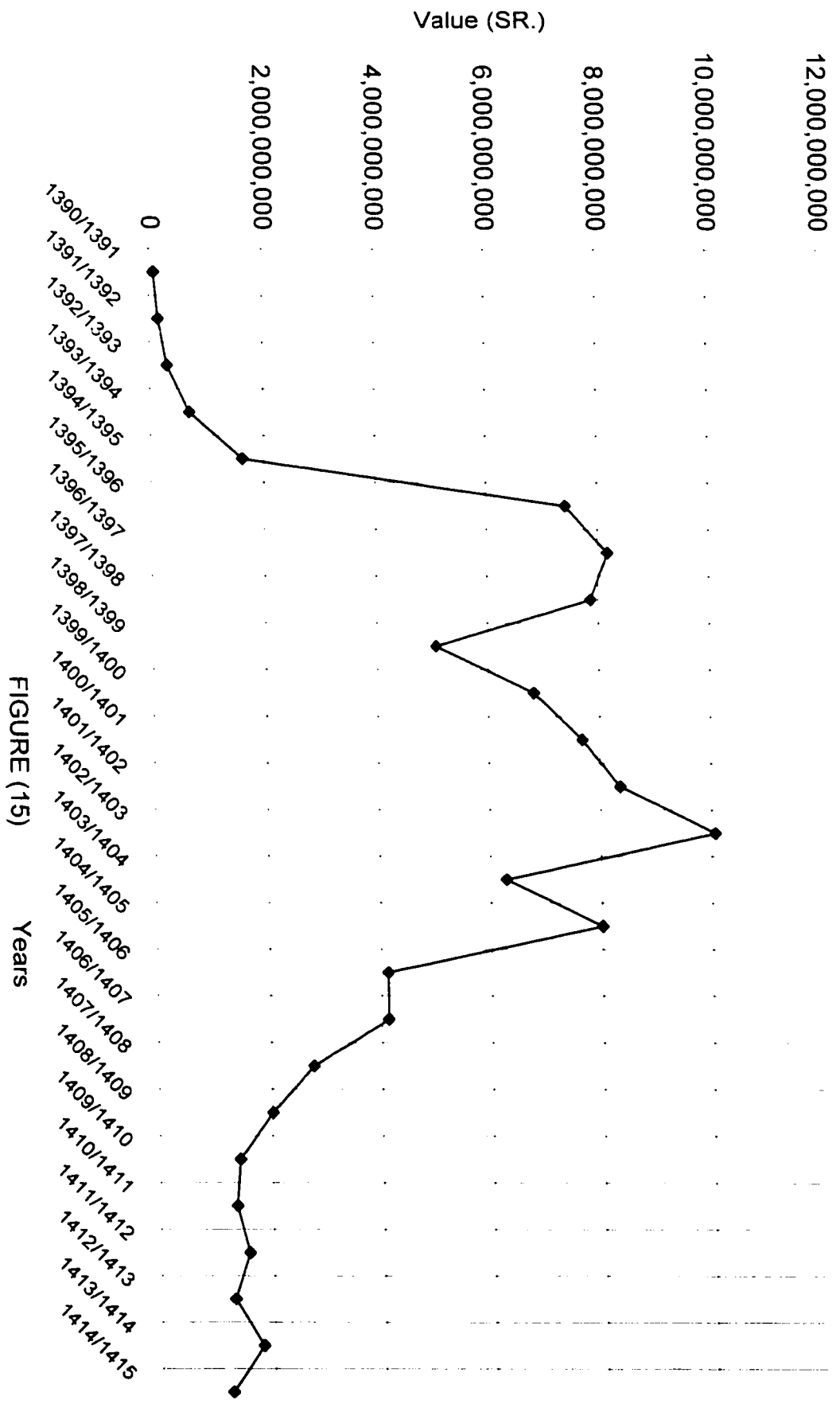

Appropriation for Education Projects
Value (SR.)
12,000,000,000
10,000,000,000
8,000,000,000
6,000,000,000
4,000,000,000
2,000,000,000
0
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years

FIGURE (15)

2.2.8.2 Projects for Ministry of Industry & Electricity

The Ministry of Industry and Electricity was established back in 1396/1397AH (1986). Prior to that year, the industrial and electrical sectors were part of the Ministry of Commerce. The establishment of this Ministry marked the beginning of a marathon to construct as much as possible of the following:

1. Electrical Power Generation Plants
2. Electrical Power Distribution Systems
3. Factories
4. Industrial Cities

The Ministry, like all Government departments, was racing against time to satisfy all the demands for electrical power. The sharp increase in the demand for electricity was beyond all the previous plans and expectations of the Ministry.

The construction activities in the electrical sector were going on round the clock. Nonetheless, there were shortcomings due to lack of

coordination between different departments that deal with overall planning, funding, services and issuing permits for construction. Providing power to all the facilities that were constructed especially during the last years of the Second Development Plan and the first years of the Third Development Plan was one of the biggest challenges that faced this Ministry. The construction industry was in danger of spinning out of control and keeping pace with it was extremely difficult if not impossible. The appropriation for this sector was among the biggest by the Government. Table (16) shows how the Government used to appropriate for this sector and figure (16) shows the trends in the appropriation.

2.2.8.3 Projects for Ministry of Agriculture & Water

The Ministry of Agriculture and Water, like any other service department, faced tough times during the period from 1398 to 1404AH (1978-1984). During that period, construction activities were heavy everywhere. The Government, Semi-Government Companies and the private sector were all heavily involved in construction.

Table (16) Appropriation for Ministry of Industry & Electricity

Gregorian Year	Hijriah Year	Appropriation (SR)
1970	1390/1391	*
1971	1391/1392	*
1972	1392/1393	*
1973	1393/1394	*
1974	1394/1395	*
1975	1395/1396	*
1976	1396/1397	1,037,125,000
1977	1397/1398	0,338,000,000
1978	1398/1399	0,293,681,000
1979	1399/1400	0,465,990,000
1980	1400/1401	0,275,000,000
1981	1401/1402	0,436,500,000
1982	1402/1403	2,798,000,000
1983	1403/1404	2,175,000,000
1984	1404/1405	5,222,800,000
1985	1405/1406	3,242,400,000
1986	1406/1407	3,242,400,000
1987	1407/1408	2,100,300,000
1988	1408/1409	1,863,500,000
1989	1409/1410	1,356,500,000
1990	1410/1411	1,132,000,000
1991	1411/1412	1,132,000,000
1992	1412/1413	No record
1993	1413/1414	No record
1994	1414/1415	No record

Sources:

1. Statistical Yearbooks (1390-1416AH)

* Part of Ministry of Commerce

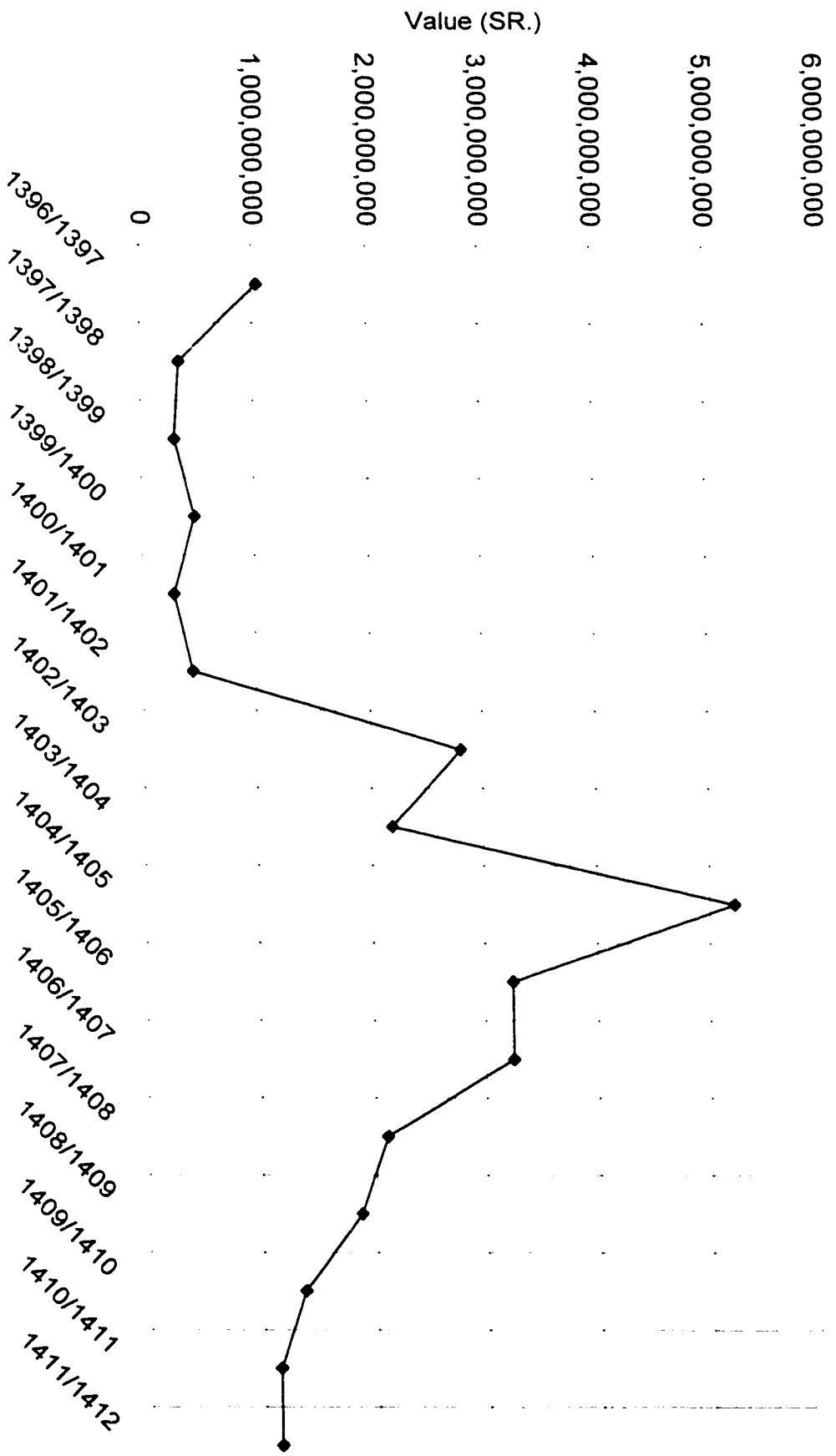

Appropriation for Ministry of Industry & Electricity Projects
Value (SR.)
6,000,000,000
5,000,000,000
4,000,000,000
3,000,000,000
2,000,000,000
1,000,000,000
0
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
Years

FIGURE (16)

That was beyond the expectation of any planner. The officials and planners at the Ministry of Agriculture were no different from others. They were trying their best to construct whatever they could even if the cost was higher than normal in order to keep pace with all the requests received from others for their services.

The Ministry provides services such as water that is essential for every one. The services are provided either directly or indirectly. The Ministry provides such services through involvement in the construction of the following:

1. Water distribution systems
2. Water desalination plants
3. Dams
4. Sewer systems
5. Sewage treatment plants

In addition, the Ministry was also indirectly involved in the construction industry. The distribution of free lands for investors to

build their own farms was an example of the indirect involvement of the Ministry in the construction industry. Table (17) shows the number and the total area of free lands that were given by the Ministry up to year 1416AH (1996).

Finally, the Ministry, as part of the Government body, got its share of financial support. It was obvious that the Government realized the importance of this sector and paid close attention to it. The appropriations of that sector as shown in table (18) give a clear picture about how the Government was taking this sector into consideration. The Government anticipated the problems of shortage of water, which in fact was affecting everything in our day-to-day life. As a result, the appropriations for this sector were to overcome those problems or at least eliminate most of them. As can be seen from table (18) the appropriations for the projects of the Ministry of Agriculture and Water did not increase every year. There were ups and downs as shown in figure (17) depending on the needs of other projects, the availability of

finance and the priorities of the Government. [The Annual Report of the Saudi Arabian Monetary Agency (1415AH/1416AH)]

2.2.8.4 Projects for Ministry of Health & Red Crescent

The Ministry of Health is another service department. The Government gave top priority to health matters. Building hospitals, medical cities, first aid centers, medical institutes and research centers represented the majority of the projects done for the Ministry.

As every one knows, treatment at Government central hospitals is free. The building of medical facilities was not done for commercial purposes. They were built for the benefit of the citizens' welfare.

The increase in the population over the years was not matched by an equivalent increase in the construction of medical facilities. Until the year 1415AH (1995), the Ministry as reported at the Statistical Yearbook of 1415H (1995) had built a total of 175 hospitals while other Government sectors built a total of 36 hospitals. In addition, the Ministry built a total of 146 first aid centers for the Saudi Red Crescent.

Table (17) Fallow Land Distribution Scheme up to the End of 1416AH (1996)

Beneficiary	Number	Area (Hectors)
Individuals	89,928	811,700
Agro-business Project	17,813	1,785,200
Agriculture	18.000	261,400
Total	107,759	2,858,300

Source: The Annual Report of the Saudi Arabian Monetary Agency (1415/1416AH)

Table (18) Appropriation for Agricultural and Water Projects on a Yearly Basis

Gregorian Year	Hijriah Year	Value in SR.
1970	1390/1391	00,230,130,000
1971	1391/1392	00,456,000,000
1972	1392/1393	00,572,462,000
1973	1393/1394	00,855,049,000
1974	1394/1395	01,053,462,000
1975	1395/1396	01,717,984,000
1976	1396/1397	01,721,373,000
1977	1397/1398	01,511,373,000
1978	1398/1399	01,854,399,000
1979	1399/1400	03,262,995,000
1980	1400/1401	03,470,349,000
1981	1401/1402	03,185,100,000
1982	1402/1403	11,249,800,000
1983	1403/1404	05,599,000,000
1984	1404/1405	03,761,400,000
1985	1405/1406	02,725,100,000
1986	1406/1407	02,725,100,000
1987	1407/1408	01,959,100,000
1988	1408/1409	01,561,000,000
1989	1409/1410	01,405,200,000
1990	1410/1411	01,405,200,000

Sources:

1. Statistical Yearbooks (1390-1416AH)
2. Annual Report of the Saudi Arabian Monetary Agency
3. Achievements of the Development Plans 1390-1415AH (1970-1995)
4. Fifth Development Plan

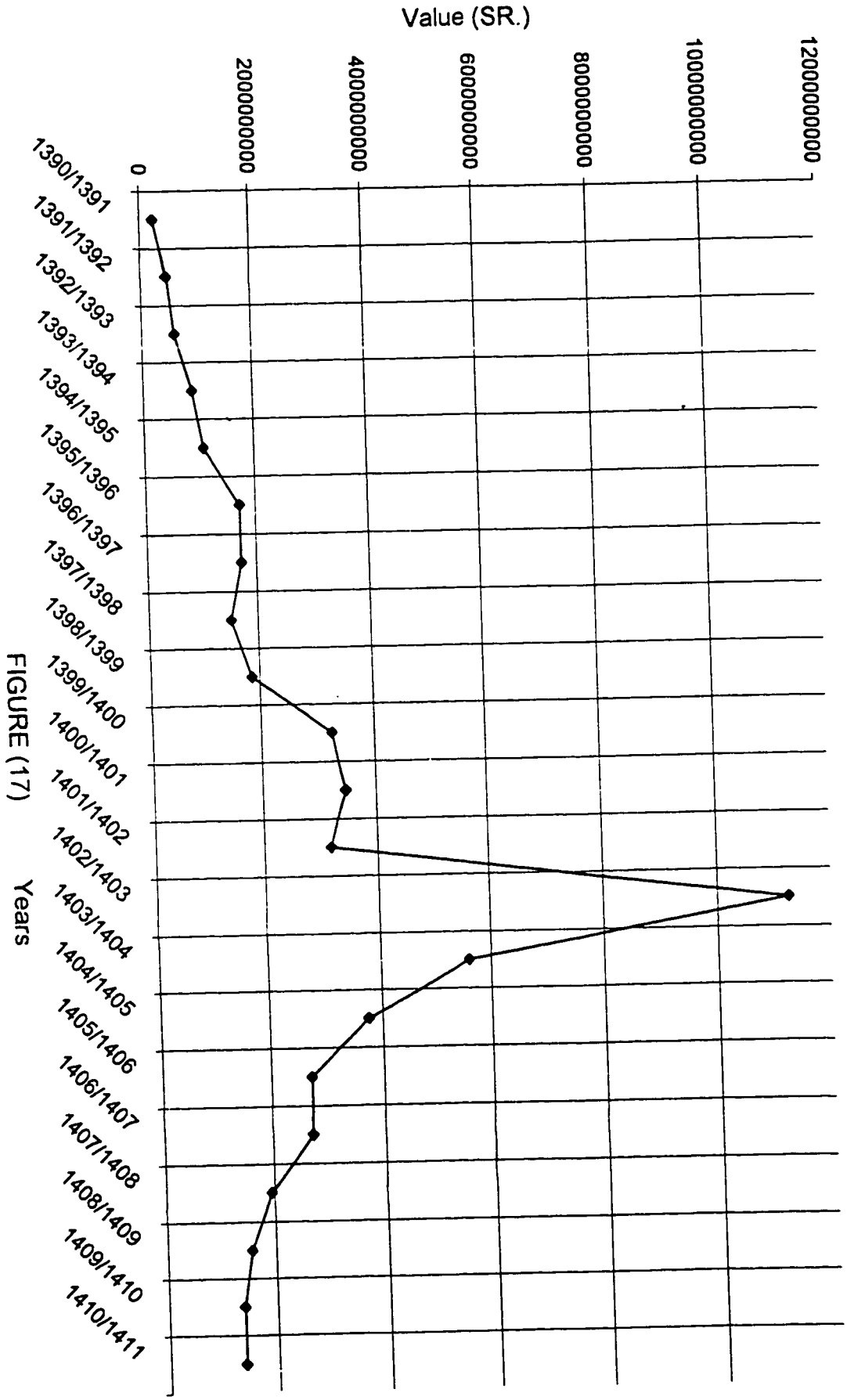

Appropriation for Agricultural & Water Projects
Value (SR.)
0
2000000000
4000000000
6000000000
8000000000
10000000000
12000000000
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
Years

FIGURE (17)

In addition, the private sector built a total of 74 hospitals and 591 dispensaries, while the total number of hospitals built all over the Kingdom by all parties up to the year 1415AH (1995) was 285.

Renting buildings inside the residential areas and converting them to health centers was the option selected by the Ministry to try to alleviate the effects of this shortage. In 1415AH (1995) the Ministry established 1,725 of those health centers at locations all over the country. This step relieved the congestion experienced at crowded general hospitals. [Statistical Year Book, 1415AH (1995)]

Only special cases nowadays are treated at the general hospitals via transfer from those health centers that are located within the residential areas. Having those rented health centers did not stop the Ministry from building more medical facilities or even upgrading the existing ones. On the contrary, the Ministry continued building new medical facilities.

In the past the Ministry had spent almost SR. 37 billion to construct medical facilities whether new or an expansion and renovation of

existing ones. [Statistical Year Books] Although the Ministry had to try to match the increase in population by building more medical facilities, the priorities of the Government with regard to projects did not allow them to go ahead with their plans. The Government had to prioritize their spending on projects depending on the economic situation and the availability of financial resources. Spending on medical projects varied from year to year as shown in table (19). From this table it may be seen that the peak of the spending on medical facilities took place between the year 1399/1400AH and 1406/1407AH (1979-1986). The trends in spending on health projects were not constant. The trends as shown in figure (18) went through many changes over the period of this study, from 1390 to 1415 (1970-1995).

Table (19) Appropriations for Health and Red Crescent Projects

Gregorian Year	Hijriah Year	Appropriation (SR)
1970	1390/1391	0,010,878,000
1971	1391/1392	0,030,314,000
1972	1392/1393	0,043,991,000
1973	1393/1394	0,085,843,000
1974	1394/1395	0,438,007,000
1975	1395/1396	2,071,815,000
1976	1396/1397	1,736,800,000
1977	1397/1398	1,768,290,000
1978	1398/1399	1,860,538,000
1979	1399/1400	2,478,868,000
1980	1400/1401	2,433,230,000
1981	1401/1402	2,805,200,000
1982	1402/1403	3,685,100,000
1983	1403/1404	2,659,400,000
1984	1404/1405	4,218,700,000
1985	1405/1406	2,220,000,000
1986	1406/1407	2,220,000,000
1987	1407/1408	1,434,300,000
1988	1408/1409	0,857,300,000
1989	1409/1410	0,700,606,000
1990	1410/1411	0,658,155,000
1991	1411/1412	0,824,200,000
1992	1412/1413	00,87,700,000
1993	1413/1414	0,710,000,000
1994	1414/1415	0,470,786,000

Sources: 1. Statistical Yearbooks (1390-1416AH)

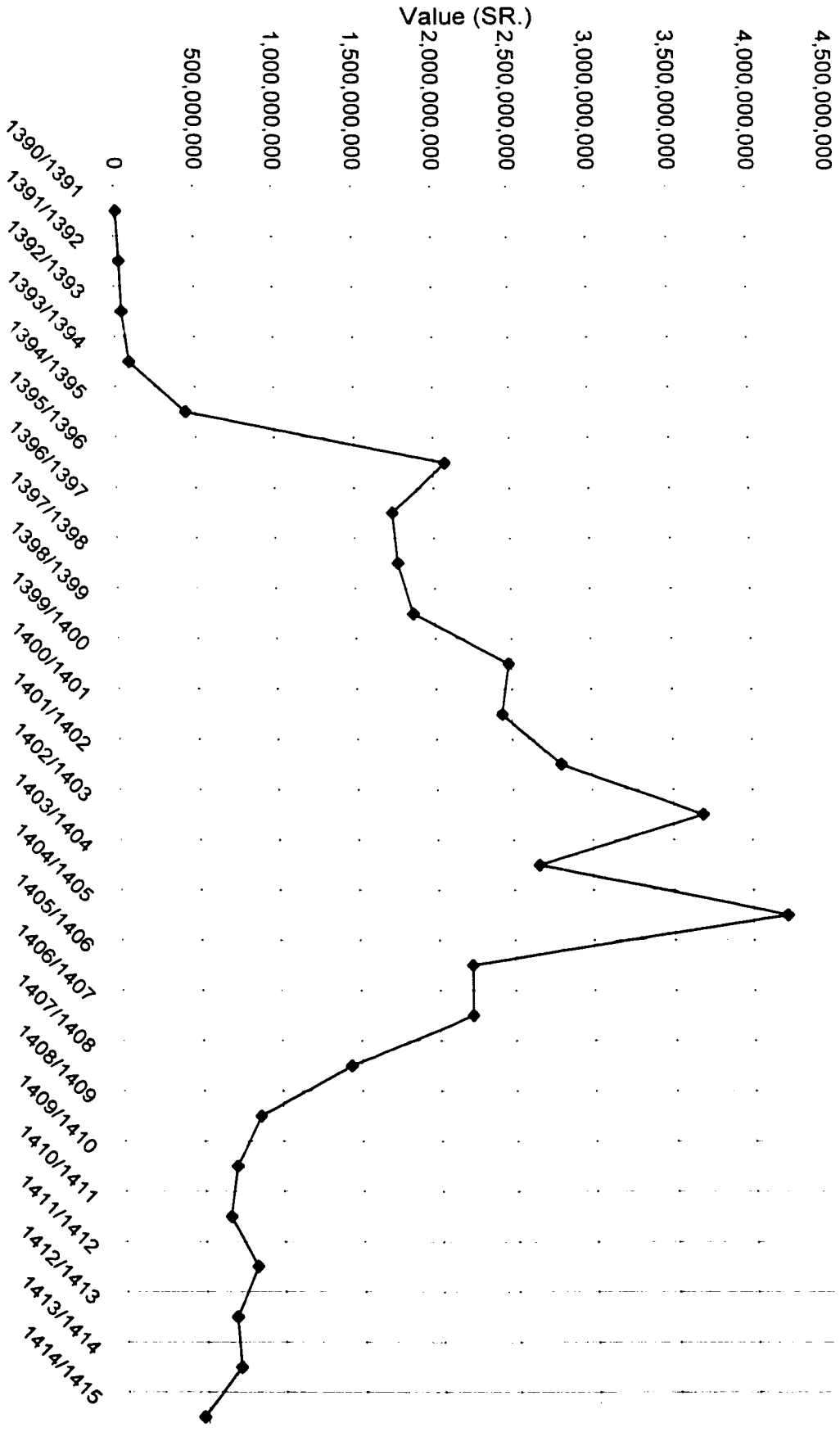

Appropriation for Health & Red Crescent Projects (SR)
Value (SR.)
4,500,000,000
4,000,000,000
3,500,000,000
3,000,000,000
2,500,000,000
2,000,000,000
1,500,000,000
1,000,000,000
500,000,000
0
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years

FIGURE (18)

2.2.8.5 Communication Projects

Construction projects for communication departments were of different types and on different scales. The communication sector consists of the following departments:

1. Roads and Ports

2. Railways

3. P.T.T

4. Civil Aviation and Saudi Airlines

Most if not all the projects that were constructed by or for these departments represented the backbone of the development of the country. These departments were responsible for the construction of the following facilities:

a. Roads (Paved or Earth-Surfaced)

b. Railways

c. Communication Systems

d. Seaports

e. Airports

There were a few government agencies, semi-government companies and private sector companies that were involved in the construction of communication projects.

For example, roads were built by the Ministry of Transportation, the Ministry of Municipal and Rural Affairs, semi-government companies and the private sector. In addition, both the Ministry of Defense and the Ministry of Agriculture and Water participated in the drive to construct roads all over the Kingdom.

Another example of the involvement of different agencies in communication projects is the construction of the airports. The Ministry of Defense and Saudi Aramco were both involved in building airports either for commercial usage, industrial usage or for military purposes. These departments had to spend heavily on communication projects. In

the Fifth Development Plan, the government appropriated an amount of SR.13.148 billion for communication projects as reported in the Achievements of the Development Plans 1390-1415AH (1970-1995) by the Ministry of Planning. Government appropriated generously to this sector as can be seen in Table (20). The trends in such appropriation can be noticed from Figure (19).

2.2.8.6 Projects for Ministry of Municipal and Rural Affairs

The Ministry of Municipal and Rural Affairs (MOMRA) is responsible for planning, implementation, operation and maintenance of infrastructure and municipal services as well as ongoing comprehensive urban planning of cities, villages and higars of the Kingdom. [Achievements of the Development Plans 1390-1416AH (1970-1996)]

The government had to appropriate enough in order to give the Ministry the flexibility of providing all the above-mentioned services without any delay.

Table (20) Appropriation for Communication Projects

Gregorian Year	Hijriah Year	Appropriation (SR)
1970	1390/1391	00,620,434,000
1971	1391/1392	01,436,619,000
1972	1392/1393	01,481,781,000
1973	1393/1394	02.543.617.000
1974	1394/1395	05,410,176,000
1975	1395/1396	15,620,800,000
1976	1396/1397	19,926,520,000
1977	1397/1398	18,880,316,000
1978	1398/1399	15,666,870,000
1979	1399/1400	21,689,665,000
1980	1400/1401	18,394,060,000
1981	1401/1402	21,285,900,000
1982	1402/1403	17,169,000,000
1983	1403/1404	14,293,000,000
1984	1404/1405	09,377,800,000
1985	1405/1406	06,320,800,000
1986	1406/1407	06,320,800,000
1987	1407/1408	04,303,100,000
1988	1408/1409	03,407,700,000
1989	1409/1410	02,853,600,000
1990	1410/1411	*2,429,200,000
1991	1411/1412	*2,429,200,000
1992	1412/1413	* No record
1993	1413/1414	* No record
1994	1414/1415	* No record

Sources:

1. Statistical Yearbooks (1390-1416AH)
2. Achievements of the Development Plans 1390-1415AH (1970-1995)
3 Fifth Development Plan (1410-1415AH)

* Total Appropriation was (SR.13, 148,000,000)

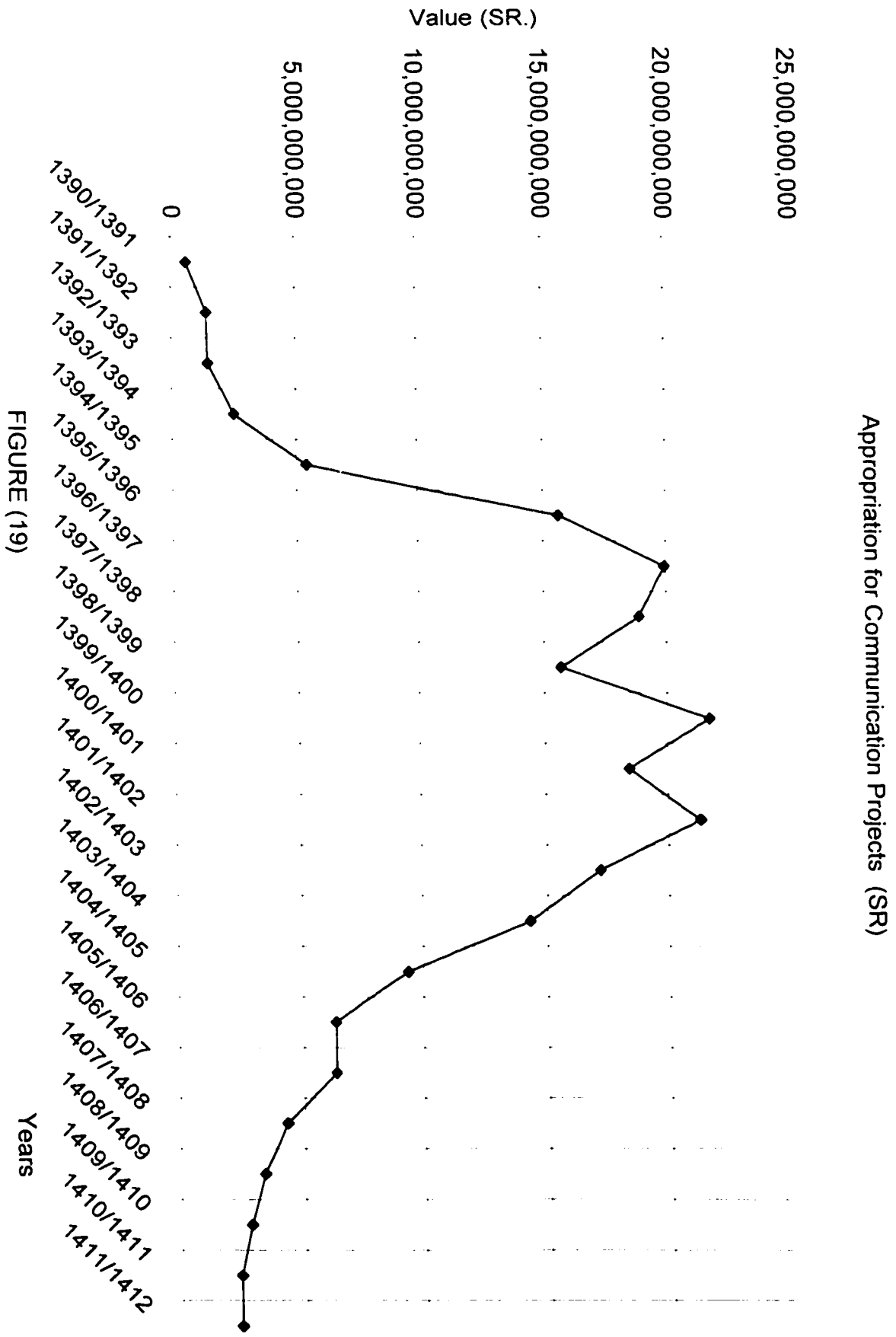

Appropriation for Communication Projects (SR)
Value (SR.)
25,000,000,000
20,000,000,000
15,000,000,000
10,000,000,000
5,000,000,000
0
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
Years

FIGURE (19)

Over a period of 23 years, from 1390 to 1412AH (1970-1992), the government appropriated, as can be seen from table (21), a total of SR. 183.6 billion. [Statistical Yearbooks] If the actual spending was about 70% of the appropriated one, then the Ministry spent about SR. 128.5 billion over a period of 23 years with an average of SR.5.6 billion per year. The trends in spending on projects by the Ministry are shown in figure (20). The Ministry carried the load of constructing streets within cities, street lighting, city plantations and so many other services.

2.2.8.7 Projects for Ministry of Public Works and Housing

The involvement of the Ministry in the construction industry was very important. The Ministry initiated many projects to build apartment buildings and villas all over the kingdom. The Government appropriated almost SR. (50) billion over a period of twenty two years for projects undertaken by the Ministry. Even if we were to assume only 50% of the appropriated amount was spent, we would still have to accept that it was a vast amount. (SR. 25 billion, averaging SR. 1.1 billion yearly)

Table (21) Appropriations for Ministry of Municipal & Rural Affairs

Gregorian Year	Hijriah Year	Appropriation (SR)
1970	1390/1391	00,190,115,000
1971	1391/1392	00,438,774,000
1972	1392/1393	00,640,547,000
1973	1393/1394	01,575,299,000
1974	1394/1395	03,683,802,000
1975	1395/1396	13,221,559,000
1976	1396/1397	14,757,957,000
1977	1397/1398	11,681,309,000
1978	1398/1399	07,966,805,000
1979	1399/1400	10,289,820,000
1980	1400/1401	16,597,297,000
1981	1401/1402	22,703,444,000
1982	1402/1403	22,044,400,000
1983	1403/1404	14,049,000,000
1984	1404/1405	12,169,200,000
1985	1405/1406	07,972,200,000
1986	1406/1407	07,972,200,000
1987	1407/1408	04,925,800,000
1988	1408/1409	03,667,500,000
1989	1409/1410	02,266,000,000
1990	1410/1411	02,404,900,000
1991	1411/1412	02,404,900,000
1992	1412/1413	No record
1993	1413/1414	No record
1994	1414/1415	No record

Sources:

1. Statistical Yearbooks (1390-1416AH)

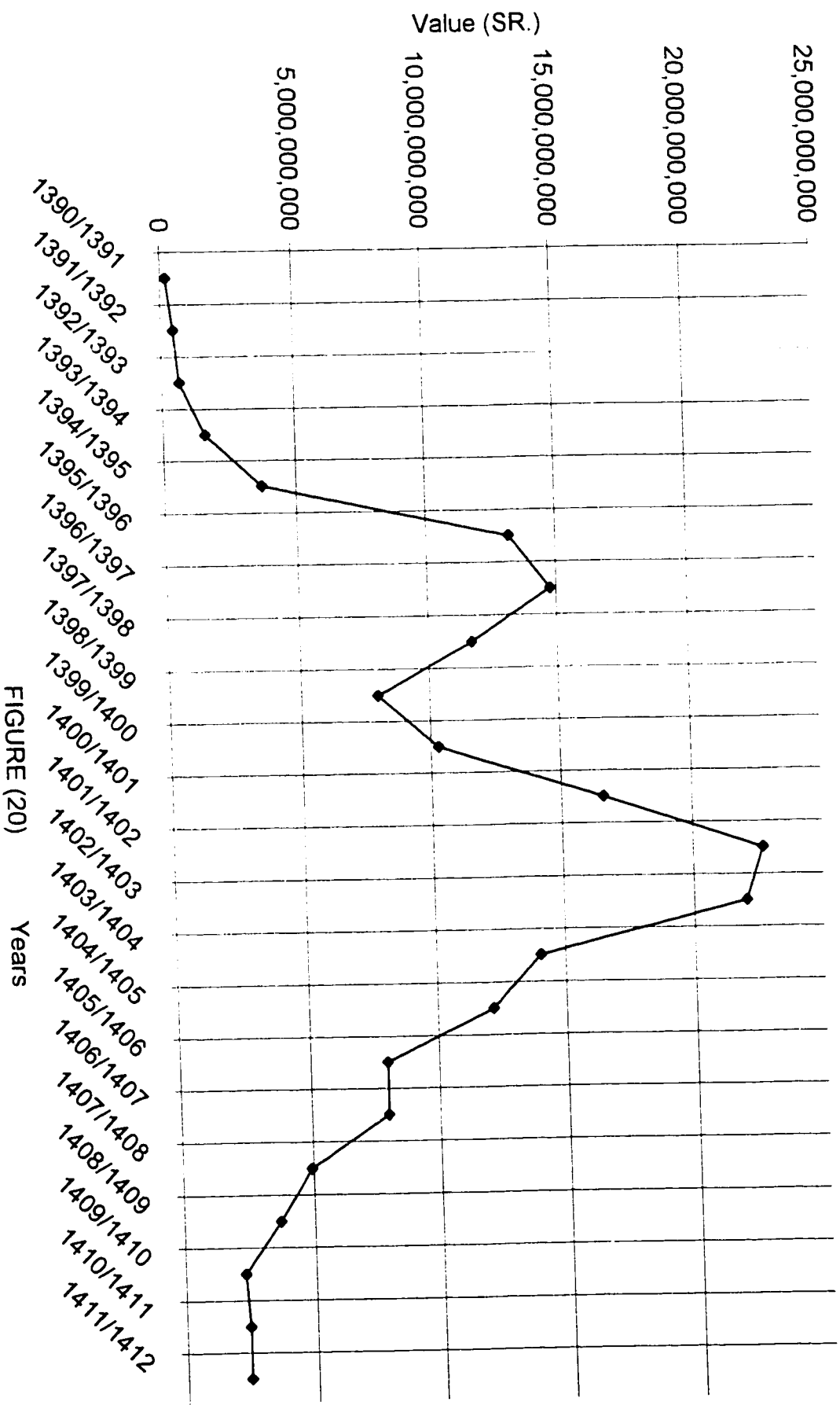

Appropriations for Ministry of Municipal & Rural Affairs Projects
Value (SR.)
0
5,000,000,000
10,000,000,000
15,000,000,000
20,000,000,000
25,000,000,000
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
Years

FIGURE (20)

Table (22) shows the amount of money appropriated on a yearly basis with Figure (21) showing the trends in these appropriations.

In addition to the role of initiating projects, the Ministry was also responsible for the regulation of businesses. Contractors in Saudi Arabia were of different ranks. Each rank would allow the contractor to bid up to a certain limit. The Ministry of Public Works and Housing established those ranks and limits. Each contractor had to apply for his rank especially if that contractor wanted to bid for government projects. The Ministry would then evaluate the application and the contractor would be ranked according to his experience and the total number of projects he had already performed.

Over the years the Ministry built a total of 11,016 villas and 14,686 apartments with a total investment of about SR. 18,655,200,000 [Saudi Arabian Monetary Agency Annual Report 1418 (1997)]

Table (22) Appropriations for Ministry of Public Works & Housing

Gregorian Year	Hijriah Year	Appropriation (SR)
1970	1390/1391	0,003,700,000
1971	1391/1392	0,003,763,000
1972	1392/1393	0,031,190,000
1973	1393/1394	0,066,545,000
1974	1394/1395	0,114,432,000
1975	1395/1396	0,185,700,000
1976	1396/1397	9,061,300,000
1977	1397/1398	7,856,800,000
1978	1398/1399	5,649,400,000
1979	1399/1400	3,172,500,000
1980	1400/1401	5,573,800,000
1981	1401/1402	6,308,400,000
1982	1402/1403	4,000,000,000
1983	1403/1404	3,500,000,000
1984	1404/1405	2,061,000,000
1985	1405/1406	1,747,500,000
1986	1406/1407	1,747,500,000
1987	1407/1408	1,288,000,000
1988	1408/1409	0,856,000,000
1989	1409/1410	0,454,000,000
1990	1410/1411	0,374,000,000
1991	1411/1412	0,374,000,000

Sources:

1. Statistical Yearbooks (1390-1416AH)

Figures for years 1402/1403 and 1403/1404 are estimated (no records)

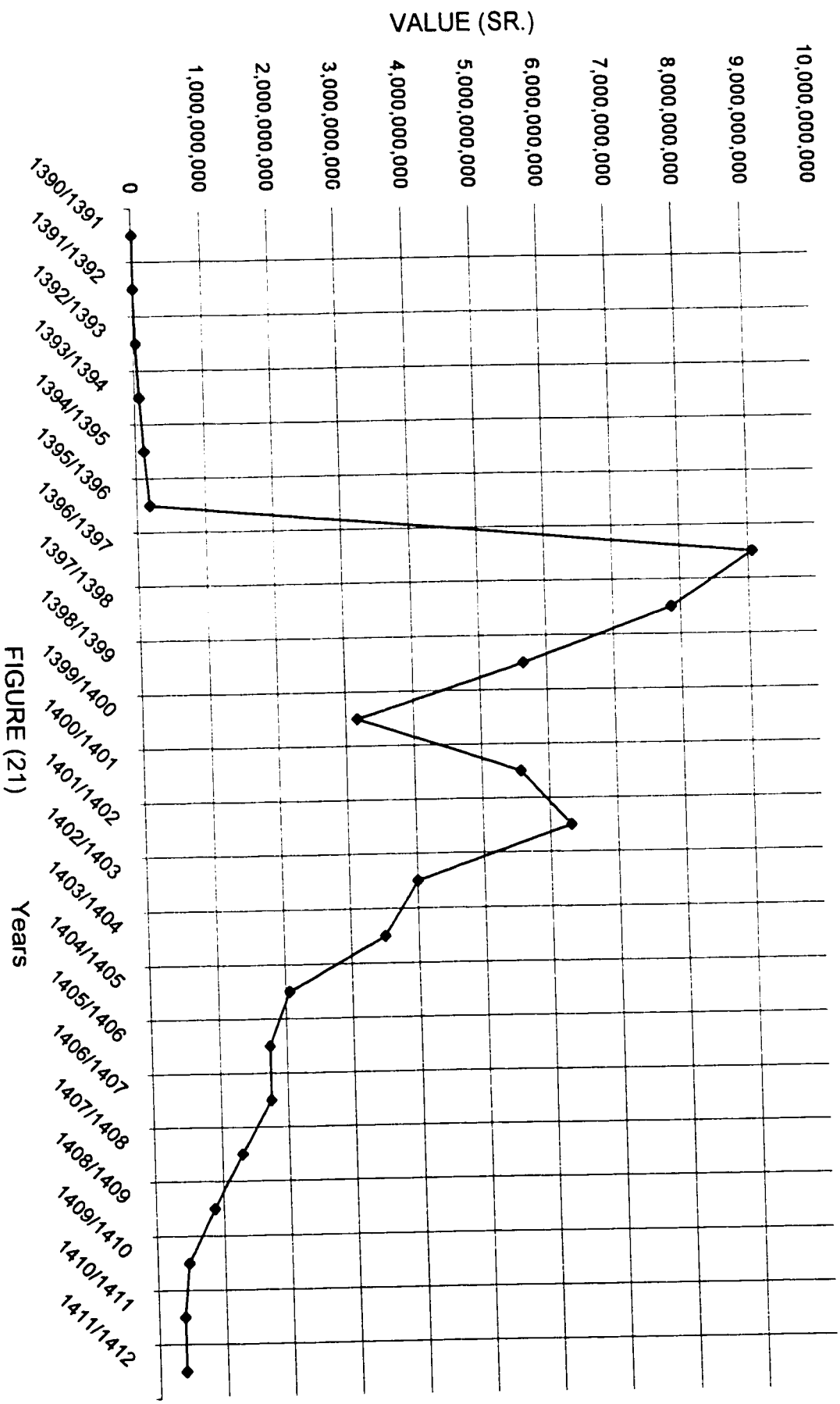

Appropriation for Ministry of Public Works & Housing projects
VALUE (SR.)
10,000,000,000
9,000,000,000
8,000,000,000
7,000,000,000
6,000,000,000
5,000,000,000
4,000,000,000
3,000,000,000
2,000,000,000
1,000,000,000
0
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
Years

FIGURE (21)

2.2.8.8 Projects for Presidency of Youth Welfare

Up to the year 1394/1395AH (1974), the Presidency was a department in the Ministry of Social Affairs. After that date the Presidency became a stand-alone department with its own budget. From the time of its establishment, the Presidency was responsible for the construction of many sports facilities. The appropriations to construct such facilities amounted to hundreds of millions of Saudi Riayls on average. In table (23) the appropriations for the years from 1390 to 1394AH are not presented as these represent the years before the Presidency was established. For the following years 1402 to 1404AH and 1412 to 1415AH no records for the appropriations exist.

It may be assumed that the appropriations for 1402/1403AH and 1403/1404AH were in the range of SR.2 billions by looking at the appropriations for the years 1401/1402AH and 1404/1405AH. Also the appropriations for the last three years in table (23) are probably in the

range of SR. 220 million. The appropriations for the Presidency were used to construct the following: [Achievements of the Development Plans 1390-1416 (1970-1996)]

1. 2 permanent youth camps at Taif and Hail
2. 24 club buildings for sports clubs
3. 15 sports centers
4. 6 indoor sports halls and swimming pools
5. 154 sports clubs
6. 5 public playgrounds
7. 19 youth hostels
8. An institute for leadership training
9. A physiotherapy unit
10. An Olympic Committee building

11. General Presidency Youth Welfare building

12. 2 coastal centers

13. An international stadium in Riyadh

14. 3 branch offices in Jeddah, Dammam and Riyadh

15. King Fahd Cultural Center

Building of those facilities was an indication of the importance of the youth welfare sector for the government. During the boom time (1398-1402AH) the appropriation for this sector was at its highest. Figure (22) shows how the appropriation started to increase from 1399/1400 to reach its peak in 1400/1401AH at almost SR.2.4 billion. It continued in the range of SR.2 billion for a few years after that, then dropped to around SR.1.2 billion and finally to about SR.350 million in later years.

Table (23) Appropriation for Presidency of Youth Welfare

Gregorian Year	Hijriah Year	Appropriation (SR)
1970	1390/1391	*
1971	1391/1392	*
1972	1392/1393	*
1973	1393/1394	*
1974	1394/1395	0,086,524,000
1975	1395/1396	0,866,100,000
1976	1396/1397	1,373,100,000
1977	1397/1398	1,598,800,000
1978	1398/1399	1,060,000,000
1979	1399/1400	1,457,000,000
1980	1400/1401	2,377,500,000
1981	1401/1402	2,313,300,000
1982	1402/1403	2,200,300,000
1983	1403/1404	2,100,300,000
1984	1404/1405	2,016,400,000
1985	1405/1406	1,211,100,000
1986	1406/1407	1,211,100,000
1987	1407/1408	0,326,000,000
1988	1408/1409	0,378,000,000
1989	1409/1410	0,322,000,000
1990	1410/1411	0,260,000,000
1991	1411/1412	0,260,000,000

Sources:

1. Statistical Yearbooks (1390-1416AH)

- Part of the Appropriation of Ministry of Labor & Social Affairs

Figures for years 1402/1403 and 1403/1404 were estimated figures

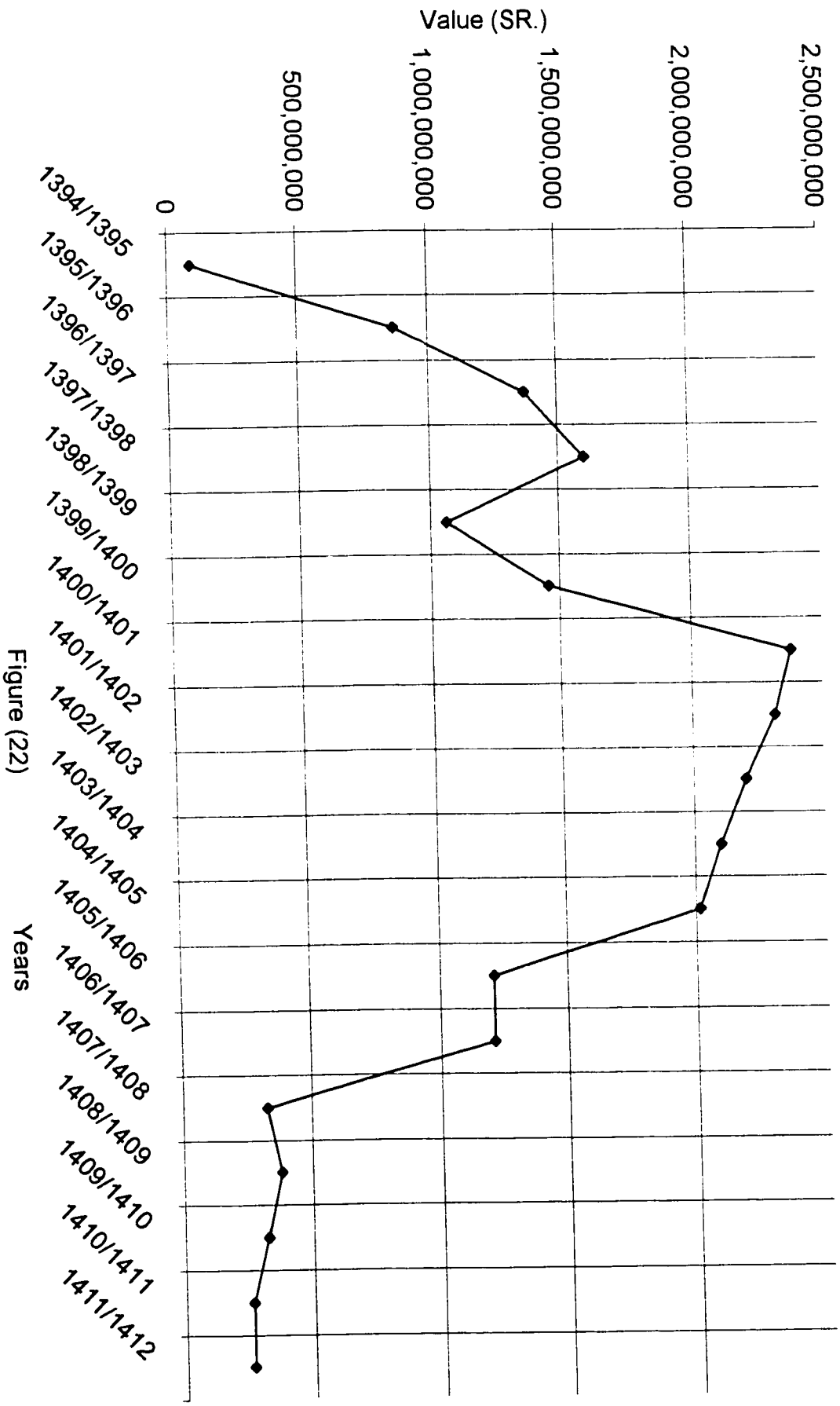

Appropriation for Presidency of Youth Welfare Projects
Value (SR.)
0
500,000,000
1,000,000,000
1,500,000,000
2,000,000,000
2,500,000,000
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
Years

Figure (22)

2.2.9 Saudi Arabian Agricultural Bank

The Saudi Arabian Agricultural Bank was established in 1384AH to provide loans for farmers. Those loans were given as stated at the Statistical Yearbook of 1413/1414AH (1994) to:

1. Buy agricultural equipment
2. Buy spare parts
3. Excavate, profound and stein wells
4. Plough and level lands
3. Purchase fertilizers and seeds transplants
4. Cover wages of workers
5. Buy fishing boats
6. Buy hives and bees equipment
7. Establish poultry projects

8. Establish dairy projects

9. Construct greenhouses

10. Buy elevators and irrigation equipment

11. Construct wind shields

Between 1390AH and 1415AH, the Saudi Arabian Agricultural Bank loaned farmers SR. 28 billion. Out of this total an amount totaling SR. 7.0 billion was loaned for construction purposes. This total was distributed over a period of twenty five years as shown in table (24). Figure (23) shows the total value of loans granted by the Saudi Arabian Agricultural Bank compared with the total loans granted just for construction purposes.

Table (24) Value of Loans by Saudi Arabian Agricultural Bank

Gregorian Year	Hijirah Year	Total value of loans (SR.)	Value of loans for construction (SR.)	Percentage (%)
1970	1390/1391	0,016,627,628	0,002,216,116	13.0%
1971	1391/1392	0,016,585,107	0,004,258,000	25.7%
1972	1392/1393	0,019,593,526	0,004,931,000	25.0%
1973	1393/1394	0,036,303,805	0,007,060,448	19.4%
1974	1394/1395	0,145,505,438	0,035,167,200	24.0%
1975	1395/1396	0,269,433,166	0,041,353,500	15.0%
1976	1396/1397	0,489,838,361	0,115,835,100	23.6%
1977	1397/1398	0,585,668,268	0,144,717,500	24.7%
1978	1398/1399	0,709,071,962	0,217,220,200	30.6%
1979	1399/1400	1,128,685,100	0,283,344,200	25.0%
1980	1400/1401	2,530,866,500	0,611,779,600	24.0%
1981	1401/1402	2,932,902,000	0,821,387,300	28.0%
1982	1402/1403	4,166,027,900	1,031,678,100	24.8%
1983	1403/1404	3,495,763,200	0,827,183,700	23.7%
1984	1404/1405	2,321,800,300	0,877,057,900	37.8%
1985	1405/1406	1,551,225,700	0,378,729,500	24.0%
1986	1406/1407	1,019,189,000	0,180,966,500	17.8%
1987	1407/1408	0,841,276,000	0,178,595,000	21.0%
1988	1408/1409	0,754,527,000	0,171,889,142	22.8%
1989	1409/1410	0,854,303,000	0,236,659,000	27.7%
1990	1410/1411	1,016,644,000	0,203,098,000	20.0%
1991	1411/1412	0,756,842,000	0,191,113,000	25.0%
1992	1412/1413	0,775,150,000	0,178,053,000	23.0%
1993	1413/1414	0,930,561,000	0,187,991,000	20.0%
1994	1414/1415	0,670,556,000	0,167,078,000	25.0%

Sources:

1. Statistical Yearbooks (1390-1416AH)

2. Fifteenth Annual Report (1398-1399A.H) of the Saudi Arabian Agricultural Bank

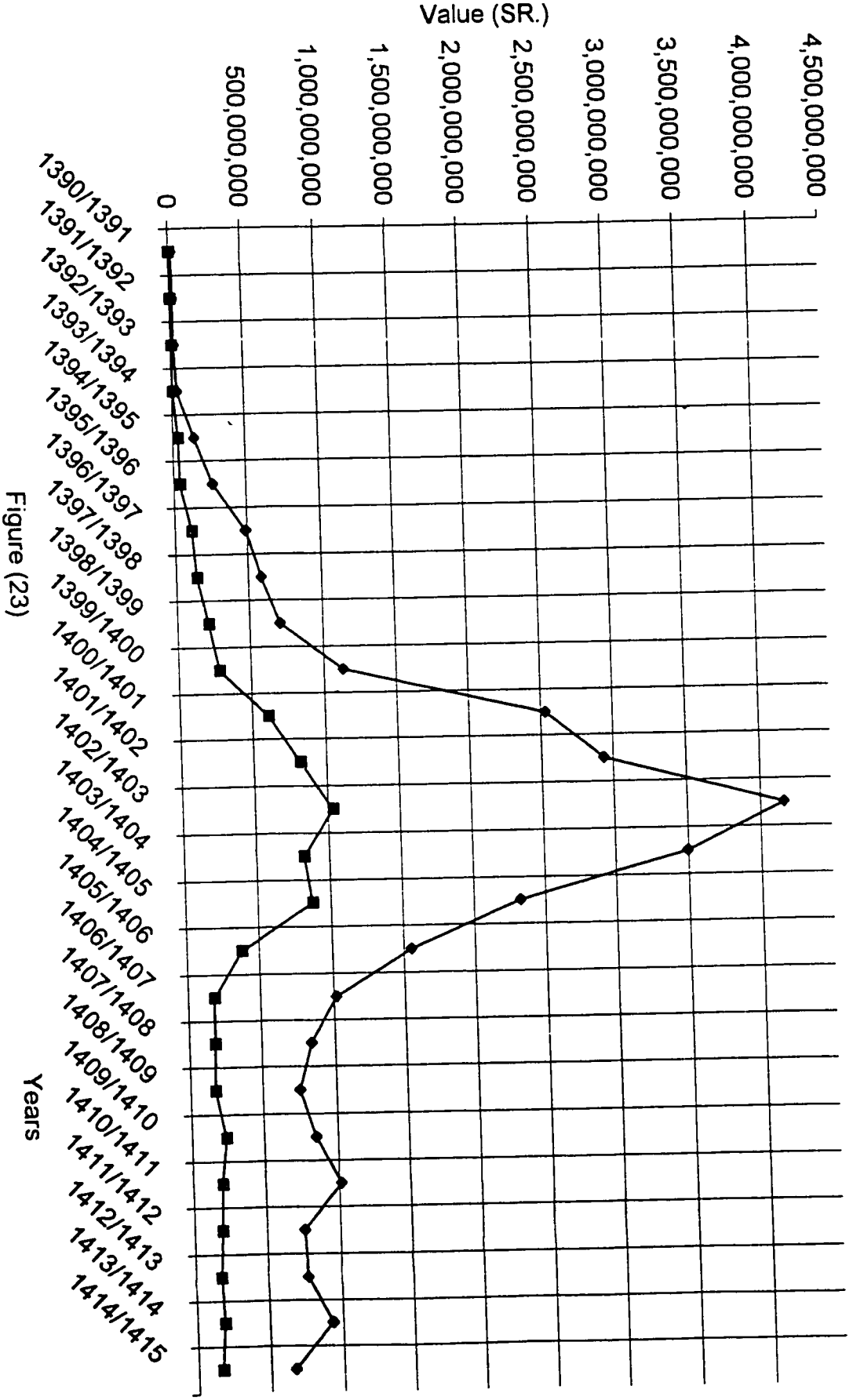

Total Value of Loans vs. Value of Loans for Construction Soley by Saudi Arabian Agricultural Bank
Value (SR.)
4,500,000,000
4,000,000,000
3,500,000,000
3,000,000,000
2,500,000,000
2,000,000,000
1,500,000,000
1,000,000,000
500,000,000
0
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years

Figure (23)

CHAPTER THREE

Contribution of All Parties in the Construction Industry in Saudi Arabia

3.1 INTRODUCTION

The construction industry, like any other industry, requires the involvement and contribution of all parties that have something to do with it. The extent of each party's involvement depends on its share in the construction industry. The effect of any one party on the construction industry also depends on its share. In this chapter we will discuss the contribution, effect and the role played by all parties in the construction industry in Saudi Arabia. This section deals with the following categories:

1. Number of contractors in Saudi Arabia and their categories.
2. Number of consultant and engineering offices.
3. Variations in the size of the labor force.

4. The role of Semi-Government Agencies in the construction industry and the types of projects each one has undertaken.

5. The role played by owners in the construction industry in Saudi Arabia.

Information regarding the contractors and their categories was obtained from the Ministry of Housing and Public Works. The information has been presented as part of this study to show the relationship between the magnitude of the construction work accomplished in Saudi Arabia and the number of local contractors involved.

Item number two covers the number of consultants and design offices who contributed to the development of the construction industry in Saudi Arabia. The consultants have been categorized by discipline according to the data received from the Ministry of Commerce. This has been presented to show their effect on construction.

For item number three, data revealing the increase and decrease in the size of the labor force was obtained from Government publications.

Item number four is about the contribution of the Semi-Government companies to the construction industry. Government publications as well as publications by the Semi-Government companies were the

source of the information required to show the role of the Semi-Government companies in the construction industry.

Item number five is about the role of the owners in the construction industry. The role of the Government as the biggest owner of the projects in the Kingdom and how it affected the activities of the construction industry is studied and presented.

3.2 CONTRACTORS & SUBCONTRACTORS

Contractors and subcontractors form another main part of the construction industry. In Saudi Arabia, the Ministry of Public Works and Housing classifies contractors according to their financial capabilities and their experience. In Saudi Arabia there are about (4000) classified Saudi contractors with different specialties and (121) non-Saudi classified contractors as shown at tables (25) and (26) respectively. Their work involved the construction of the following:

1. Buildings

2. Roads

3. Water & Sewage systems

4. Electrical works

5. Mechanical works

6. Industrial works

7. Marine works

8. Dams

9. Well drilling

10. Maintenance & Operation

The contractors listed above were not the only contractors who were involved in the construction industry in Saudi Arabia, but they were the only contractors classified by the Agency for the Classification of Contractors. There were many contractors who, although they did not apply for this classification, did undertake a great deal of construction work. Adding them to those classified by the Ministry would bring the

total number of contractors with different specialties to more than 4000. The main thing about the volume of contractors was their effect on the cost and the quality of the projects constructed. The greater the competition between the contractors, the lower is the cost and the higher the quality of construction. In addition, the more experienced Saudi contractors there are in the country, the less dependent is the country.

3.3 CONSULTANTS /DESIGN OFFICES

Up to the third quarter of 1414AH, there were about (1077) consultants and design offices in Saudi Arabia, as shown in table (27). (Ministry of Commerce: Report on Licenses Issued by the Ministry in 1414 AH). These offices were both part of and the result of the development of the Kingdom (1390-1415AH). They were involved in the pre-construction stages as well as the construction stages in some cases. They were involved in the designing of thousands of housing projects. Sometimes they were involved in the estimation of the construction cost of the project they designed. Without those design

offices, designing would be both difficult and expensive. They were not involved in designing housing projects only, but also in designing lots of facilities for semi-government companies such as Saudi Aramco and for the private sector.

3.4 LABOR FORCE

The work force came to Saudi Arabia from all over the world. They were ranked differently when it comes to how skillful they were. During the time when the construction industry in Saudi Arabia was at its peak, it was very difficult for local contractors to stop and check whether they were hiring skilled or unskilled labor.

In the frenzy of activity at that time all the companies involved recruited whatever type of labor was available and local contractors had no choice but to go with the trend.

Table (25) Number of Contractors Classified by Field & Grade

Field	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade	Total
Buildings	22	57	151	155	783	1168
Roads	19	28	53	68	370	538
Water & Sewage Systems	5	10	32	66	195	308
Electrical Works	9	21	49	64	341	484
Mechanical Works	1	11	18	29	188	247
Industrial Works	2	3	3	8	34	50
Marine Works	2	2	1	3	12	20
Dams	4	8	5	15	63	95
Well Drillings	0	0	0	0	1*	1
Maintenance & Operation	37	69	87	136	720	1049
Total	101	209	399	544	2707	3960

Source: Ministry of Public Works & Housing, February 04,1989

* Well drillers are given classification (D) for deep drilling or (S) for surface drilling

Table (26) Number of Contractors Classified by Field & Grade

NON-SAUDI

Field	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade	Sixth Grade	Total
Buildings	02	04	13	06	05	04	34
Roads	01	01	03	07	02	01	15
Water & Sewage Systems	0.0	01	03	12	03	01	20
Electrical Works	01	0.0	0.0	04	03	08	16
Mechanical Works	0.0	0.0	0.0	0.0	02	02	04
Industrial Works	01	01	0.0	02	05	01	10
Marine Works	0.0	03	01	01	0.0	01	06
Dams	0.0	0.0	0.0	0.0	02	01	03
Maintenance & Operation	01	0.0	01	02	01	04	09
General Contracting	2	01	0.0	01	0.0	0.0	04
Total	08	11	21	35	23	23	121

Source: Ministry of Public Works & Housing, February 04,1989

The labor force involved in the construction industry are those performing the actual construction work and may be classified as follows:

1. Engineers
2. Masons
3. Painters
4. Plumbers
5. Equipment drivers
6. Carpenters
7. Foremen
8. Electricians
9. Helpers
10. Welders

11. Steel erectors

In Saudi Arabia as in other countries, the construction industry is labor intensive. The particularly high demand for labor was a result of the quantity of the projects initiated either by the Government, Semi-Government companies or by the private sector. At one time, particularly in 1399/1400AH (1979), there were about 638,900 workers [Third Development Plan] involved in construction activities in Saudi Arabia. In 1404/1405AH (1984) the total size of the labor force involved in construction activities increased to 1,470,000 workers [Fifth Development Plan]. The difference between the number of workers in 1399/1400AH (1979) and that in year 1404/1405AH (1984) was about 800,000. The increase was due to the fact that the quantity of projects was at its peak during the Third Development Plan. As can be seen, in the following years when the honeymoon of the construction industry was over, the total number of workers started to decrease. In 1409/1410AH (1989) the total size of the labor force amounted to 916,700 workers [Sixth Development Plan]. The drop in the number of

workers was due to the completion of most of the Government projects. When the Government started to initiate new projects in 1414/1415AH (1994) or before, the number of workers started to increase again. In that year the number rose to about 1,060,700 workers. So the ups and downs in the size of the labor force in the construction market in Saudi Arabia followed the same trend as the construction industry in general.

The contribution of the labor force was a vital one. They were the fuel of the construction industry. The construction industry could not progress anywhere without their contribution.

3.5 SEMI-GOVERNMENT COMPANIES

Semi-government companies such as Saudi Aramco, SCECO, SABIC had a considerable effect on the construction industry. These companies, especially Saudi Aramco, had been in this business for a long time.

Table (27) Number of Consultants and Design Offices in Saudi Arabia

Type	Total up to 1390	Total up to 1395	Total up to 1400	Total up to 1405	Total up to 1410	Total up to 1414
Consultants Offices	07	31	108	272	320	381
Design Offices	05	30	116	277	423	696
Overall Total	12	61	224	549	743	1077

Source: Ministry of Commerce, 1415AH

The involvement of these companies went from infrastructure types of projects to industrial types of projects. The total cost of those projects was in billions of Saudi Riyals. The liquidity of those billions in the construction market created thousands of job opportunities for many contractors, materials vendors, construction workers, design offices and many others.

1. Saudi Aramco

Saudi Aramco is an oil company yet its projects spread all over the country and cover every aspect of the construction industry whether infrastructure types of projects or industrial types. Saudi Aramco involved in the construction of almost everything, not only for their own use but also for the benefit of others, such as with the Government school program. Since Saudi Aramco started this program in the early sixties, they have built 110 schools for both boys and girls with a capacity of about 61,000 students. [Source: Saudi Aramco Diary Book, 1998]

The professional atmosphere in Saudi Aramco attracted many workers involved in the construction industry. Because of the size and the complexity of the company's requirements, only the most qualified parties could participate in construction activities for Saudi Aramco. The company's projects were designed and built to the highest standards and quality. The project management business line, through its project management departments in the company or hired project management team, made sure that all projects built for the company were built in line with those two criteria.

Maintaining quality and high standards costs a lot of money. The company was ready to pay up front whatever the cost for their projects in order to achieve those two criteria rather than paying more later on either for maintenance or for rebuilding the facilities. This in itself affected the type of labor force and the methods of construction at the company's projects.

Saudi Aramco has been involved in the construction industry since the discovery of oil in Saudi Arabia in the late thirties. The company played a great role in the expansion of communities such as Dammam, Khobar, Dhahran, Yanbu, Jubail, Ras Tanura and others. Their homeownership program contributed a lot to the expansion of these communities. Saudi Aramco granted loans for its employees to build their homes. The company provided loans to build more than 40,000 homes. [Source: Saudi Aramco Diary Book, 1998] Beside loans to employees, the company carried the load of developing lots of those communities.

Saudi Aramco, because of its nature as an oil company, was heavily involved in industrial projects. Over the years it discovered about 77 oil and gas fields, including Ghawar oil field, the largest oil field in the world, and Safaniyah oil field, the largest offshore oil field in the world. Saudi Aramco has been involved in the construction of thousands of oil and gas pipelines. Since 1980 it has been operating the Master Gas System, the backbone of industrial development in Saudi Arabia.

Saudi Aramco is also involved in the construction of refineries all over the Kingdom. It owns five domestic refineries in Riyadh, Ras Tanura, Yanbu, Rabigh and Jeddah.

In recent years the company has launched big projects that cost tens of billions of Saudi Riyals. "Saudi Aramco accelerated plans to raise the company's maximum sustainable oil production capacity to ten (10) million b/d by 1995 will involve an overall capital cost of US $ 16 billion and plans for the development of light crude oil finds in the Central Region are projected to cost US $500 million."[Henry T. Azzam] The construction of these projects is almost complete. During the construction of such projects, all parties have been involved.

Saudi Aramco supports local businesses and the national economy by purchasing most of its materials from the local market. The company purchases almost 90% of its materials from Saudi vendors at a total cost of SR. 5.2 billion [Source of Information: Saudi Aramco Diary Book, 1998]

2. SCECO

The Saudi Consolidated Electrical Company (SCECO) was established mainly to develop the electrical sector in the Kingdom. The projects that were constructed for this sector affected the construction industry positively. Building so many power plants, establishing tens of thousands of kilometers of overhead and underground power cables and providing services to all customers were very beneficial as far as the construction industry was concerned.

The huge expansion that took place in the electrical sector proceeded alongside the extraordinary expansion in every other sector in Saudi Arabia. Building new or expanding existing communities, factories and so many other facilities would not have been possible if expansion in the electrical sector did not keep pace with what was happening in other sectors.

Expansion in this sector was to continue at the same pace if not faster. "Upgrading the Kingdom's electrical output to meet a three-fold

increase in the demand from the current 20,000MV forecast for the next 25 years will cost SR. 440 billion ($117.33 billion) according to the Minister of Industry and Electricity Dr. Hashim Abdullah Yamani." [Gulf Construction, April 1996]

The future expansion and construction of more power plants by SCECO was estimated to meet the increasing demand for electricity. Unless this expansion takes place, the future of the construction industry will not be certain.

3. SABIC

Saudi Basic Industries Corporation (SABIC) was established in 1395 AH (1975) with a capital of SR. 10 billion. It was established to utilize the local resources of hydrocarbons and minerals as raw materials. By the end of 1415 SABIC had established 15 basic, downstream and support industries with an annual production capacity of about 19.5 million metric tons of petrochemicals, plastics, fertilizers, metals and industrial gases. [Achievements of the Development Plans 1390-

1415AH (1970-1995)] These companies hired almost 11,500 employees, the majority being Saudi nationals.

The construction of such companies affected not only everyone involved in the construction industry but also the lives of the people in both Jubail and Yanbu. The construction of those companies resulted in wider construction to modernize both cities. The infrastructure of both cities was rebuilt to fulfill the needs of such companies and their employees, visitors, and customers. The location of King Fahd International Airport near Jubail in the Eastern Province was chosen to help promote the activities of those companies and Saudi Aramco.

The establishment of those companies resulted in the creation of so many other companies either to serve the purposes of SABIC companies or to use the output from those companies as their raw materials. "The Jubail and Yanbu basic industry programs envisage the construction of as many as two dozen major new refineries, petrochemical, fertilizer, iron and steel and other resources-based industries, as well as secondary

manufacturing and fabricating factories that use the output of the basic industries as raw materials by the end of the century."[Elmallak] The more companies that were established the more job opportunities there would be. In addition, the need for more housing units, hospitals, schools and so on and so forth would increase to match the growth of the population.

3.6 OWNERS

Owners of projects in Saudi Arabia were Government, semi-Government companies and the private sector. The involvement and contributions of semi-Government companies have been discussed in previous sections. The involvement and contributions of the Government and private sector as owners are to be discussed in the following section.

a. Government

Government for example affected the construction industry in two ways: directly and indirectly. It did so directly when it was acting as an

owner and indirectly when it was acting as a body that enforces rules and regulations or when it was affecting the decision of other parties involved in the construction industry.

The direct involvement of the Government in construction was discussed in chapter two. In the following sections, the indirect involvement of the Government and the involvement of others in the construction industry in Saudi Arabia will be discussed.

The initiation and financing of thousands of projects during the period from 1390AH to 1415AH (1970-1994) by the Government could be considered both direct and indirect involvement in the construction industry. The Government was an owner for lots of projects, which affected the economic condition of the country. "It is indeed through Government expenditure appropriations that one sees the greatest influence of the government on the levels of economic activities."[ELMALLAKH] What did the Government do to influence the economy? Construction of the infrastructure by the Government was

the starting point for lots of projects that involved others. Building factories, houses, hospitals, hotels, apartment buildings, workshops, market places and so many other projects, either by the semi-Government companies or by the private sector, was the result of Government projects and financial support. The creation of hundreds of thousands of job opportunities for the citizens was another result of Government involvement in the construction industry.

The Government built roads, seaports, airports, a telephone system, sports facilities, industrial cities, health facilities etc. Those projects made it easy and less expensive for others to build their own projects. The injection of hundreds of billions of Saudi Riyals by the Government into the economy by building all the above facilities affected the life of the people of Saudi Arabia. Availability of liquidity in the hands of the people got them to build their own projects or at least to participate in building more projects.

Parallel to the Government projects, there were Government rules and regulations that affected the construction industry. The Government through its departments established rules and regulations to ensure that this industry was run properly. Getting permits for building any type of project was one of those rules and regulations. Applying for visas for the laborers, engineers, consultants and others who had something to do with the construction industry, was another aspect of these rules and regulations. Those rules and regulations affected the construction industry in many ways. Some of those rules and regulations were for organization purposes and others were for planning purposes. Issuing visas for contractors and businessmen to be able to hire employees from outside the Kingdom was an organizational type of rule. It was a general rule of thumb that if the Government allowed everyone to get into the country easily, the situation would become chaotic. Some kind of control was therefore essential.

The Government established rules and regulations to organize the development of the country. It also established some kind of control over the flow of labor into the country.

Regulations concerning applications for construction permits were necessary to ensure the plans prepared by the Government for the expansion of the construction activities were followed. If the authorities allowed every one to build what ever they wanted, when ever they wanted and where ever they wanted, one could see a factory in a residential area and a house in an area where there were no services at all. Construction permits were required to regulate where to build, when to build and what to build.

The Government also affected the financial aspect of the construction industry in the Kingdom. The injection of billions of Riyals into the construction industry, by initiating thousands of projects, had its effect on that industry. "The Government was also indirectly responsible for much of the non-government sector spending by means of loans

funds."[Local Industrial Development Department, Aramco, 1981] Government financed the construction of houses, apartment buildings, shopping malls, factories, farms, showrooms, car parks etc. These projects were for completion by the private sector. The loans by the Government to finance these projects were generated through the following:

1. Real Estate Development Fund

2. Saudi Credit Bank

3. Saudi Industrial Development Fund

4. Public Investment Fund

The Government established the above institutions to help the private sector to build their own projects. The loans from the above institutions were free of interest. In addition, if the person who got the loan paid it back on time, the Government would give him a refund to encourage him and others to do so. The Government carried the burden of paying

the employees who were working in those institutions to serve the public and to help promote the construction industry.

1. Real Estate Development Fund

The Real Estate Development Fund was established on 11/6/1394 AH to provide loans mainly for the construction of houses. Its services covered up to 3,156 cities, towns and villages. [Annual Report of Real Estate Development Fund, 1413/1414AH (1994)] Between its inception and 1413/1414AH, the Fund provided 411,711 private loans as shown in table (28). The value for these loans amounted to a total of SR.107, 947 million with an average of about SR. 5,681 million per year. The loans were used to construct 489,404 housing units. [Annual Report of Real Estate Development Fund, 1413/1414AH (1994)] The trends in the amount of money lent and the number of loans granted yearly are shown in figures (24 &25) respectively.

In addition, the Fund provided 2,470 investment loans as shown in table (29). The total value for these loans was SR. 5,154 million over a

period of eighteen years with their trends shown in figure (26). The SR. 5,154 million were used to construct the following:

1. 4,922 buildings that have 29,227 housing units
2. 2,857 offices
3. 5,125 commercial show-rooms
4. 23,367 car parks

Loans from the Fund were very helpful in alleviating the problems associated with the shortage of housing units that existed in the late 1390s AH and the early 1400s AH. At that time, the demand for housing units was extremely high.

2. Saudi Credit Bank

The main objective in creating this bank was to grant interest free loans to low-income citizens. The loans granted were for specified social and economic purposes such as marriage, health, artisan

workshops and home improvements. [Al-Dulaijan] Home improvement loans are the subject of this study. The bank granted a total of about SR. 2 billion for home improvements. The total number of loans was 140,719 loans. Table (30) shows the value and the number of loans granted by the bank between 1393 and 1415AH (1982-1995). Figure (27) shows the trend of the loans that were granted by the bank.

3. Saudi Industrial Development Fund (SIDF)

SIDF was established mainly to provide loans to the private sector for industrial projects. It provided up to 50% of the total capital for any manufacturing facility and up to 100% for electrical companies. Over the years the Fund provided 1,745 loans to the private sector for a total of SR. 55 billion. [Achievements of the Development Plans 1390-1415 (1970-1995)] Table (31) and figure (28) show the value and the trends of the loans granted by the Fund during the period from 1394AH to 1415AH (1973-1995).

5. Public Investment Fund (PIF)

The Public Investment Fund was established in 1391/1392AH (1971). The fund provided loans only for those projects that were commercially sound and important for the country's development. From 1401AH until 1414AH the Fund granted in terms of loans an amount of SR. 32.7 billion [Statistical Yearbooks, 1390-1415AH] Saudi Arabian Airlines (SAUDIA), Petromin and Saudi Arabian Basic Industries (SABIC) were some of the Fund's customers. The total value of loans granted by the Fund from its establishment until the year 1414AH (1994) was about SR. 55.7 billion. [Achievements of the Development Plans 1390-1415 (1970-1995)]

Table (28) Number & Value of Loans by Real Estate Development Fund

Gregorian Year	YEARS	Total value of loans (SR. million)	Number of loans
1975	1395/1396	7,827	32,705
1976	1396/1397	12,694	47,063
1977	1397/1398	1,068	4,196
1978	1398/1399	8,913	35,394
1979	1399/1400	8,060	32,727
1980	1400/1401	7,058	28,742
1981	1401/1402	8,185	31,684
1982	1402/1403	9,546	35,727
1983	1403/1404	7,935	29,334
1984	1404/1405	7,134	26,225
1985	1405/1406	5,158	18,842
1986	1406/1407	3,059	11,182
1987	1407/1408	3,193	11,633
1988	1408/1409	3,377	12,279
1989	1409/1410	2,243	8,174
1990	1410/1411	2,224	8,121
1991	1411/1412	1,565	5,476
1992	1412/1413	2,276	8,867
1993	1413/1414	6,432	23,340
1994	1414/1415	No records	No records

Sources:

1. Statistical Yearbooks (1390-1416AH)

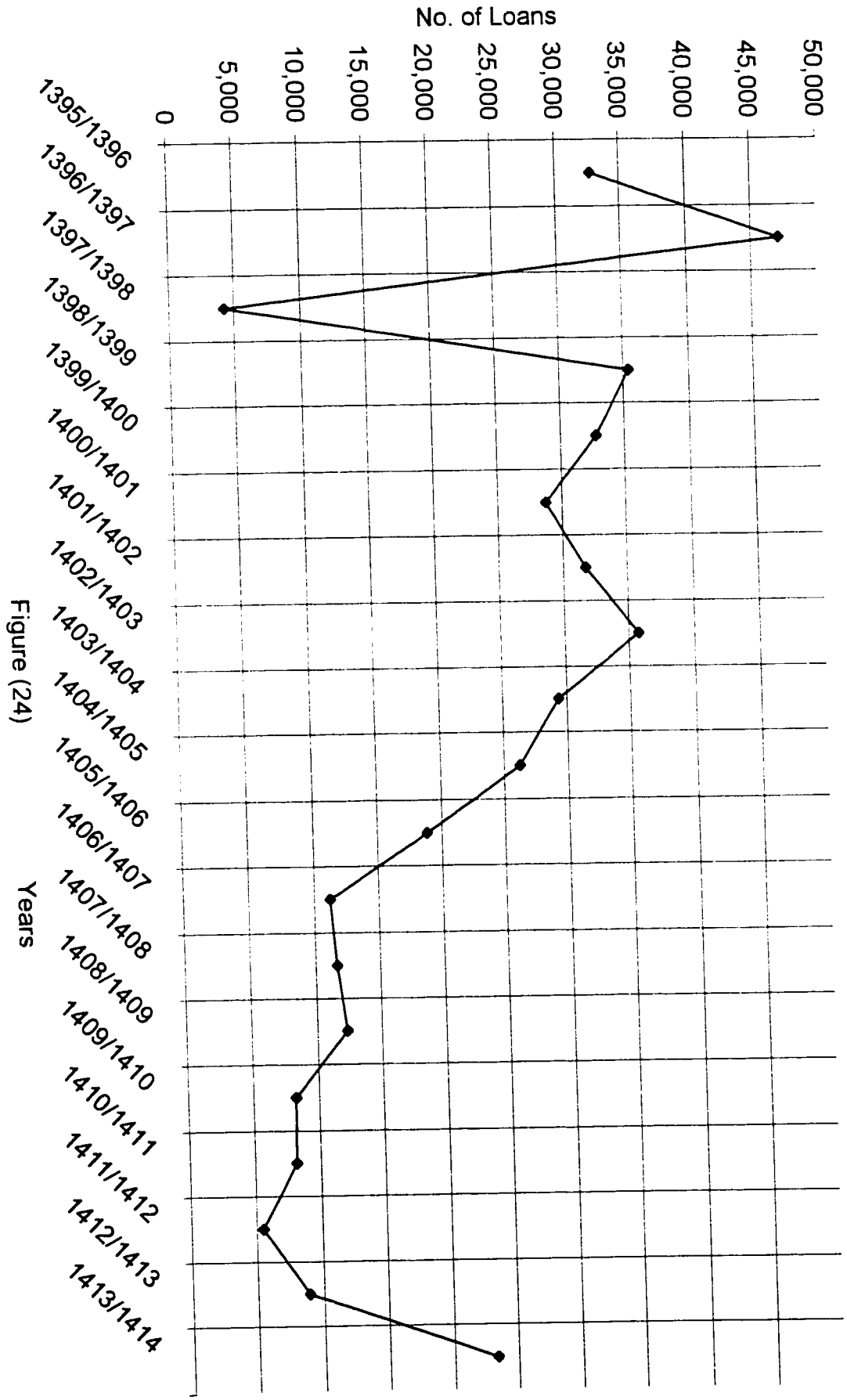

Number of Loans by Real Estate Development Fund
No. of Loans
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
Years

Figure (24)

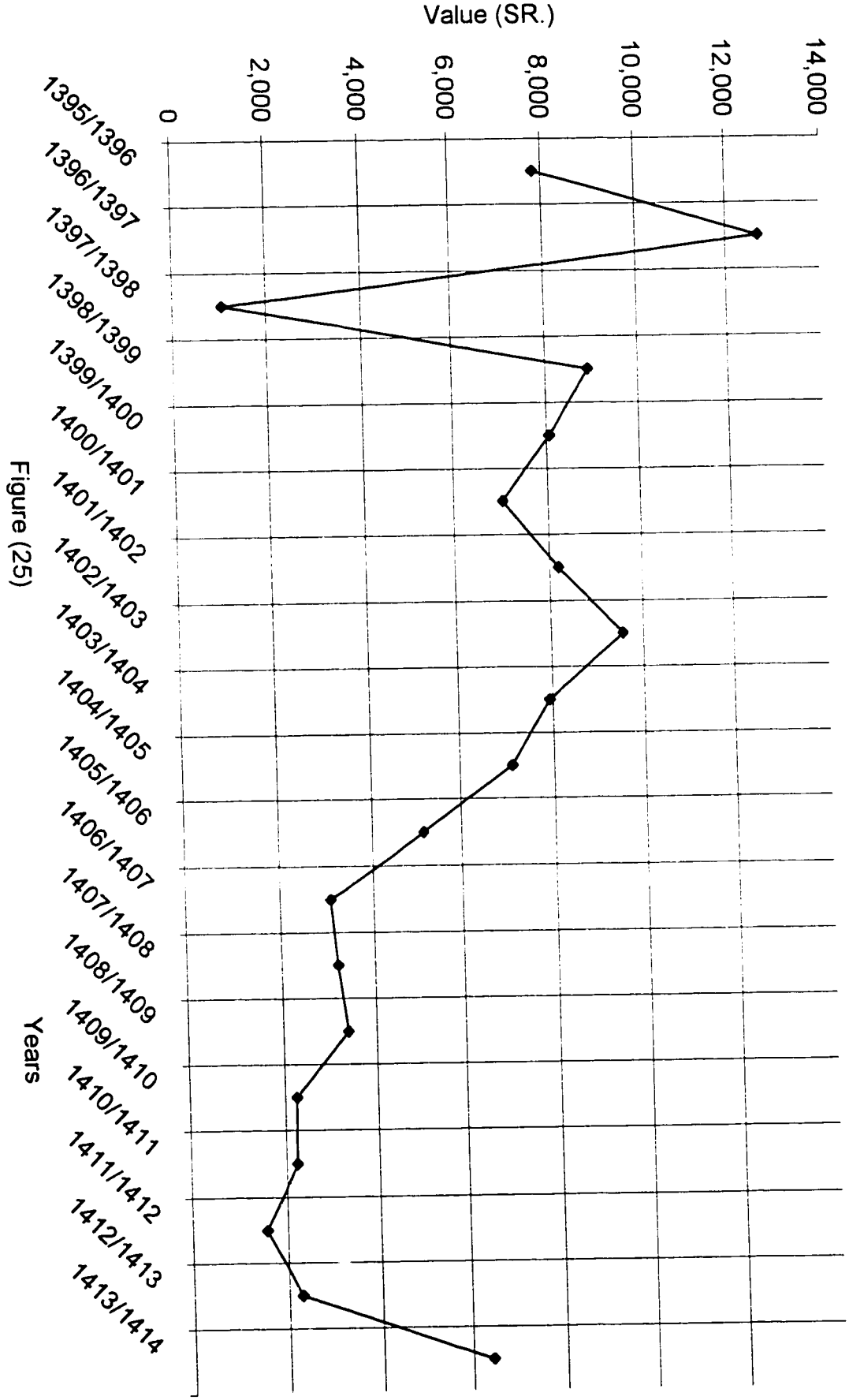

Total Value of Loans by Real Estate Development Fund
Value (SR.)
0
2,000
4,000
6,000
8,000
10,000
12,000
14,000
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
Years

Figure (25)

Table (29) Number & Value of Investment Loans by Real Estate Development Fund

Gregorian Year	YEARS	Total value of loans (SR. million)	Number of loans
1976	1396/1397	907	366
1977	1397/1398	236	131
1978	1398/1399	664	409
1979	1399/1400	489	275
1980	1400/1401	399	205
1981	1401/1402	441	192
1982	1402/1403	515	231
1983	1403/1404	369	163
1984	1404/1405	407	119
1985	1405/1406	280	89
1986	1406/1407	86	37
1987	1407/1408	53	35
1988	1408/1409	59	49
1989	1409/1410	87	67
1990	1410/1411	77	48
1991	1411/1412	44	33
1992	1412/1413	14	9
1993	1413/1414	27	12
1994	1414/1415	No records	No records

Sources:

1. Statistical Yearbooks (1390-1416AH)

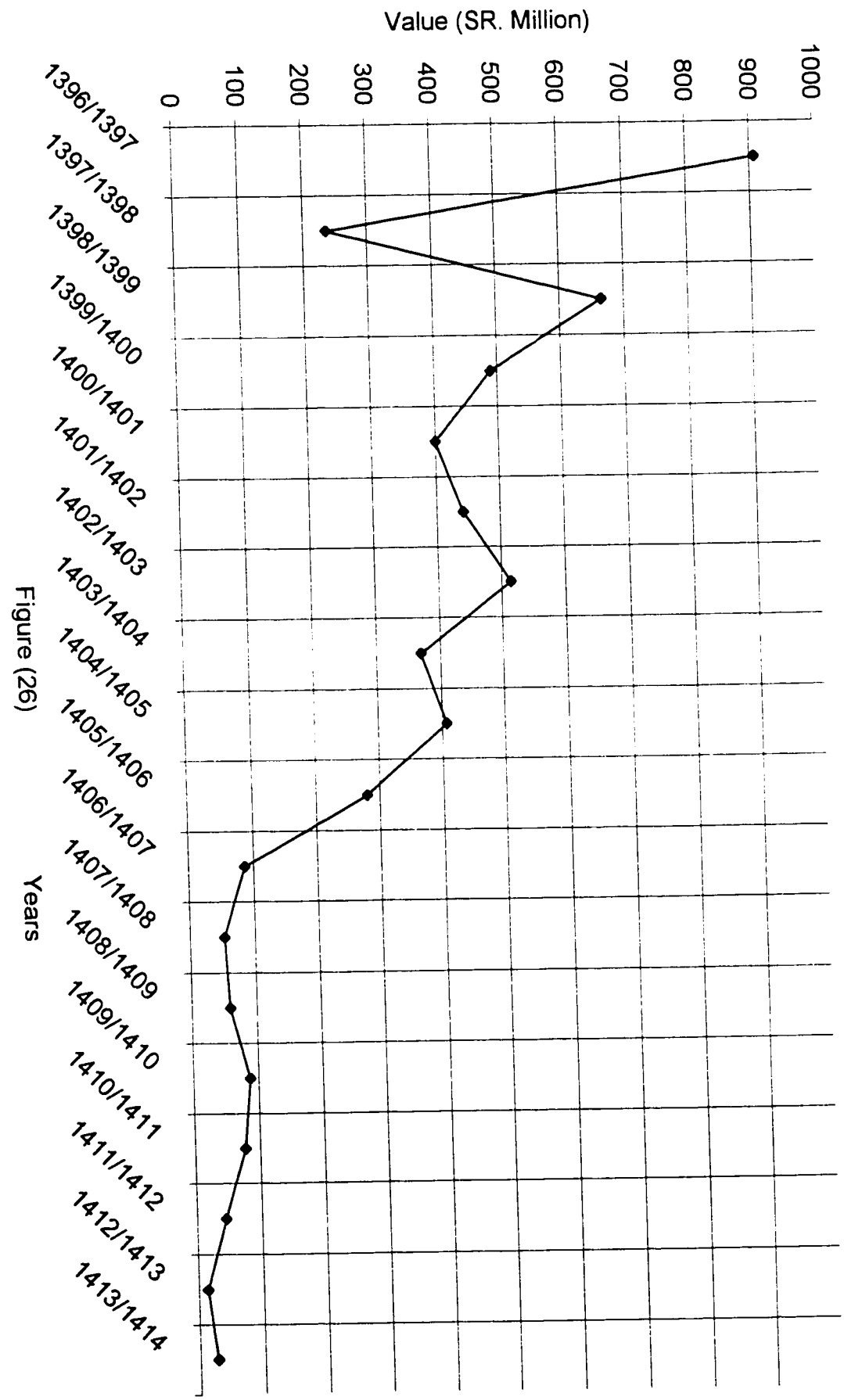

Value of Investment Loans by Real Estate Development Fund
Value (SR. Million)
0
100
200
300
400
500
600
700
800
900
1000
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
Years

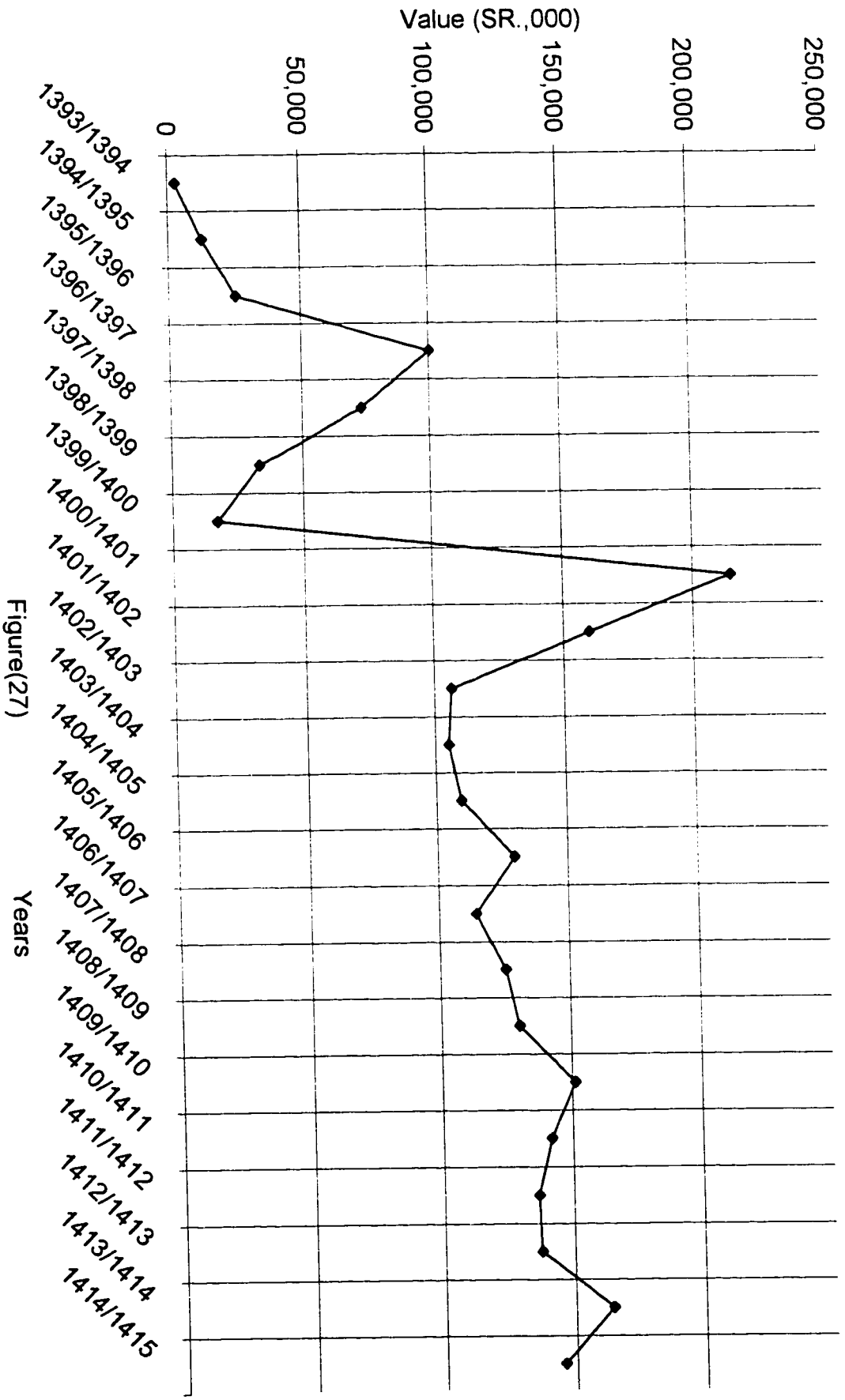
Figure (26)

Table (30) Number & Value of Loans by Saudi Credit Bank for Home Improvements

Gregorian Year	YEARS	Total value of loans (SR. ,000)	Number of loans
1973	1393/1394	2,933	543
1974	1394/1395	12,893	1,944
1975	1395/1396	25,340	3,467
1976	1396/1397	100,359	13,525
1977	1397/1398	73,697	9,979
1978	1398/1399	33,203	4,410
1979	1399/1400	17,014	2,363
1980	1400/1401	214,364	11,021
1981	1401/1402	160,057	8,047
1982	1402/1403	106,575	5,531
1983	1403/1404	105,191	5,297
1984	1404/1405	109,557	5,504
1985	1405/1406	129,520	6,503
1986	1406/1407	114,251	5,743
1987	1407/1408	125,238	6,276
1988	1408/1409	129,967	6,518
1989	1409/1410	151,131	7,600
1990	1410/1411	141,551	7,113
1991	1411/1412	136,376	6,855
1992	1412/1413	137,053	6,890
1993	1413/1414	164,700	8,282
1994	1414/1415	145,361	7,308

Sources:

1. Statistical Yearbooks (1390-1416AH)


Value of Loans by Saudi Credit Bank for Home Improvements
Value (SR.,000)
0
50,000
100,000
150,000
200,000
250,000
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years

Figure(27)

Table (31) Total Value of Loans by Saudi Industrial Development Fund

Gregorian Year	Year	Value (SR. million)
1974	1394/1395	35
1975	1395/1396	2,159.2
1976	1396/1397	8,900.2
1977	1397/1398	7,534.2
1978	1398/1399	6,768.4
1979	1399/1400	5,387.2
1980	1400/1401	7,809.4
1981	1401/1402	5,432.5
1982	1402/1403	5,927.7
1983	1403/1404	5,034.3
1984	1404/1405	962.7
1985	1405/1406	877.5
1986	1406/1407	217.3
1987	1407/1408	798.9
1988	1408/1409	1,348.2
1989	1409/1410	642.2
1990	1410/1411	953
1991	1411/1412	1,749
1992	1412/1413	1,920
1993	1413/1414	1,807.7
1994	1414/1415	2,312

Sources:

1. Statistical Yearbooks (1390-1416AH)

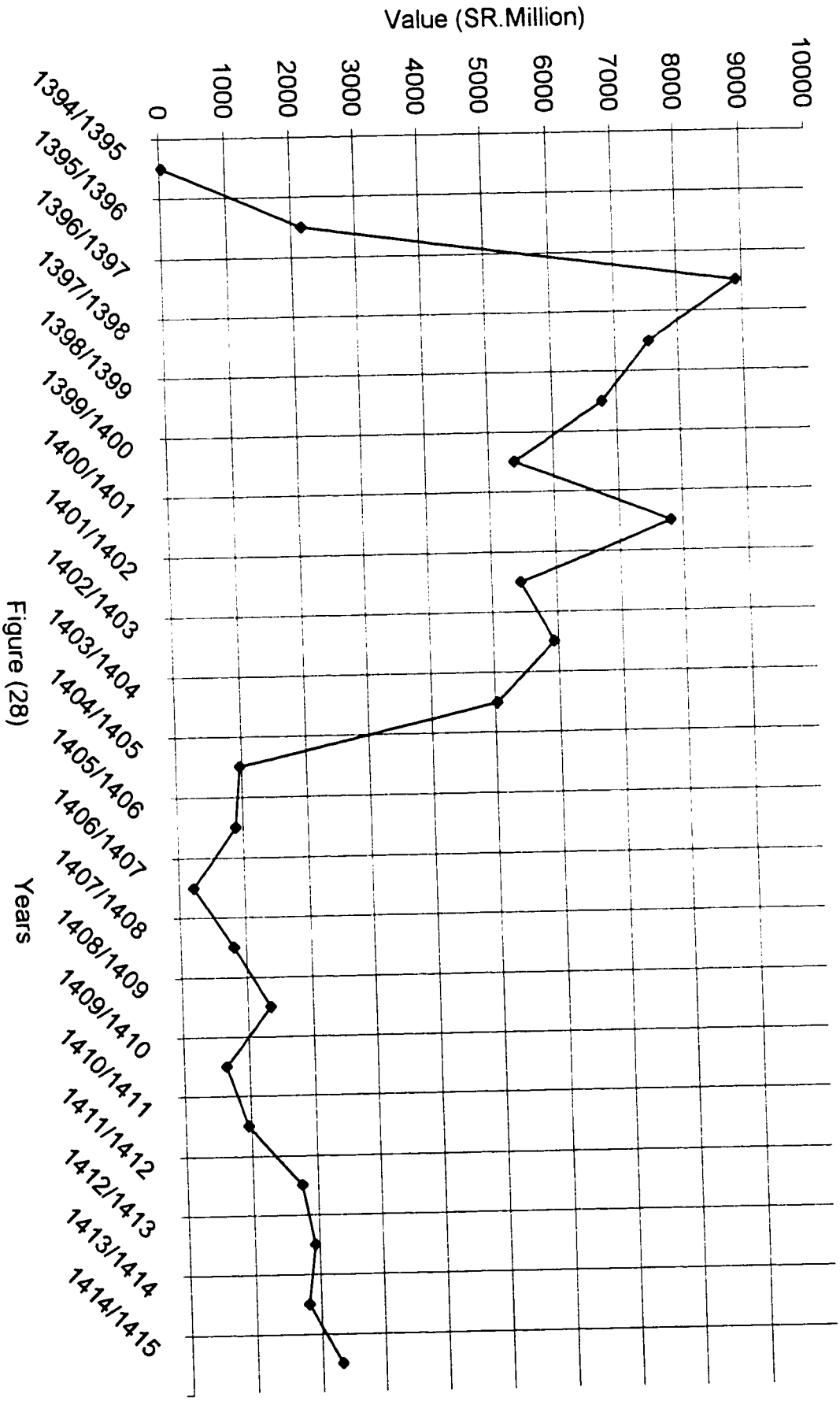


Figure (28) Value of Loans by Industrial Development Fund

b. Private Sector

The private sector played an important part in the construction industry in Saudi Arabia. Members of the private sector such as the banks, businessmen and regular citizens participated in the construction industry whenever the need arose.

Banks for example granted loans to import construction materials (Table 6). The banks also financed the construction of some projects. "Three major financial groups have submitted bids to extend a $500 million syndicated loan to Saudi Consolidated Electrical Company for the Eastern Province (Sceco-East) to finance the construction of the $1.5 billion Ghazlan Power Plant. The groups are led by Saudi Arabia's National Commercial Bank". [Gulf Construction, April, 1996]

Thousands of construction permits were issued to citizens to enable them to construct their houses, shopping malls, office complexes, factories, hotels, hospitals, gas stations, supermarkets, private schools and show rooms.

The availability of financial resources in the hands of the Saudis was one of the reasons for the revolution in the construction industry. Building this quantity of projects affected the lives and thinking of the people of Saudi Arabia.

Most of the people in Saudi Arabia 25 years ago were not expert when it came to construction activities. Although most of them had some kind of requirements for their project, they did not know whether these requirements were the best for them or not. The owners were not any different from owners anywhere else, such as in USA, as James J. O'Brien and Robert G.Zilly mentioned in their book titled "Contractor's Management Handbook":

In view of the high risk involved in guiding a construction project from conception to completion, it is surprising that owners have not developed better methods to help them deal with the problems presented by a new project.

The technical background of construction for most of the owners, other than the government, the semi-government companies and the privately owned companies, was way below average. During the

seventies, the requirements of the Saudis were very basic, and can be summed to two requirements: (1) the required number of units and (2) the space or the area of these units. Later on after constructing so many projects, the requirements of the Saudis started to develop to touch upon some technical requirements such as heat insulation, the spacing between the rebar steel and concrete and so many others. So the more the Saudis built projects, the more experience they gained and the higher was the standard demanded and attained in the completed buildings.

The availability of construction materials made it easier for the owners and contractors to built their projects. It would be difficult to build all these projects without the availability of enough construction materials. Tables (5-10) show the quantities of building materials that were either produced locally or imported to promote the construction industry. The availability of these materials was the contribution the businessmen made to the construction industry.

Another example of the contribution of the businessmen was their involvement in the construction of housing compounds, hotels, apartment buildings and so many other projects. A SR.40 million housing complex in Al-Khobar by Shaikh Mohammed Al-Rumaih was one of those projects by businessmen. That project consisted of 84 duplex villas and recreational facilities. [Gulf Construction, July, 1991]

CHAPTER FOUR

DISCUSSION & ANALYSIS

4.0 GENERAL

The data gathered from the Government publications represent the appropriated cost of the Government projects, in addition to other actual data concerning the quantities of what were constructed in Saudi Arabia. The published Government records do not contain details of all the actual cost for the construction done for or by each Government agency over the period from 1390 to 1415AH (1970-1995). As stated before, it is difficult to determine actual Government expenditure on construction especially if it is required in detail. The data located whether actual or appropriated are presented in this thesis.

4.1 Analysis of the Appropriation of Construction vs. Actual Cost

The tremendous need for projects, especially the infrastructure type of projects, in Saudi Arabia was the driving force for the Government to appropriate as much as SR. 1,826 billion for the project sectors over

the period from 1390 to 1415AH. Actually, the Government could not spend all the appropriation because of the decline in the oil prices from 1402/1403AH (1983) as shown earlier in Table (1) or because the shift in the Government priorities to more important things such as financing its share in the Gulf crisis (1990).

The information regarding the accomplishments and trends of the construction industry is divided into many parts. Before starting the discussion and the analysis of the data concerning all these parts in detail, the total cost of construction as appropriated in the Government budget vs. the actual expenditure will be presented.

The overall appropriation and actual cost of the Government projects were founded on a yearly basis and per a Five-Year-Development-Plan. Table (32) and Figure (29) show a comparison between the appropriated cost of the construction industry and the actual cost.

The total appropriation for projects from 1390 to 1415AH was about SR. 1,826 billion whereas the total actual expenditure was around SR. 1,533.4 billion. The actual expenditure represents 84% of the total appropriation.

Although, the overall percentage of the actual expenditure to the appropriated cost was 84%, the yearly percentage varies between 40% to 362% as shown in Table (32). These variations were due to the financial capabilities of the Government and their needs.

Table (32) Total Appropriation for All Government Projects vs. Actual Expenditure

Gregorian Year	Hijriah Year	Projects Total Appropriation Billion SR.	Projects Actual Expenditure Billion SR.	Percentage (%)
1970	1390/1391	002.65	001.70	64 %
1971	1391/1392	005.06	002.00	40 %
1972	1392/1393	006.81	003.00	44 %
1973	1393/1394	014.47	006.70	46 %
1974	1394/1395	026.92	015.00	56 %
1975	1395/1396	073.38	033.00	45 %
1976	1396/1397	094.79	053.00	56 %
1977	1397/1398	097.72	063.00	64 %
1978	1398/1399	097.61	068.00	70 %
1979	1399/1400	131.50	083.00	63 %
1980	1400/1401	174.74	135.00	77 %
1981	1401/1402	205.93	172.00	84 %
1982	1402/1403	202.81	158.00	78 %
1983	1403/1404	128.50	120.00	93 %
1984	1404/1405	130.10	102.00	78 %
1985	1405/1406	082.09	073.00	89 %
1986	1406/1407	082.09	052.00	63 %
1987	1407/1408	057.08	051.00	89 %
1988	1408/1409	032.30	022.00	68 %
1989	1409/1410	037.09	036.00	97 %
1990	1410/1411	034.69	053.00	153%
1991	1411/1412	034.69	057.00	164%
1992	1412/1413	021.26	077.00	362%
1993	1413/1414	029.45	063.00	214%
1994	1414/1415	021,01	034.00	162%

Sources:

1. Sixth Development Plan (1415-1420AH)
2. Statistical Yearbooks (1390-1416AH)

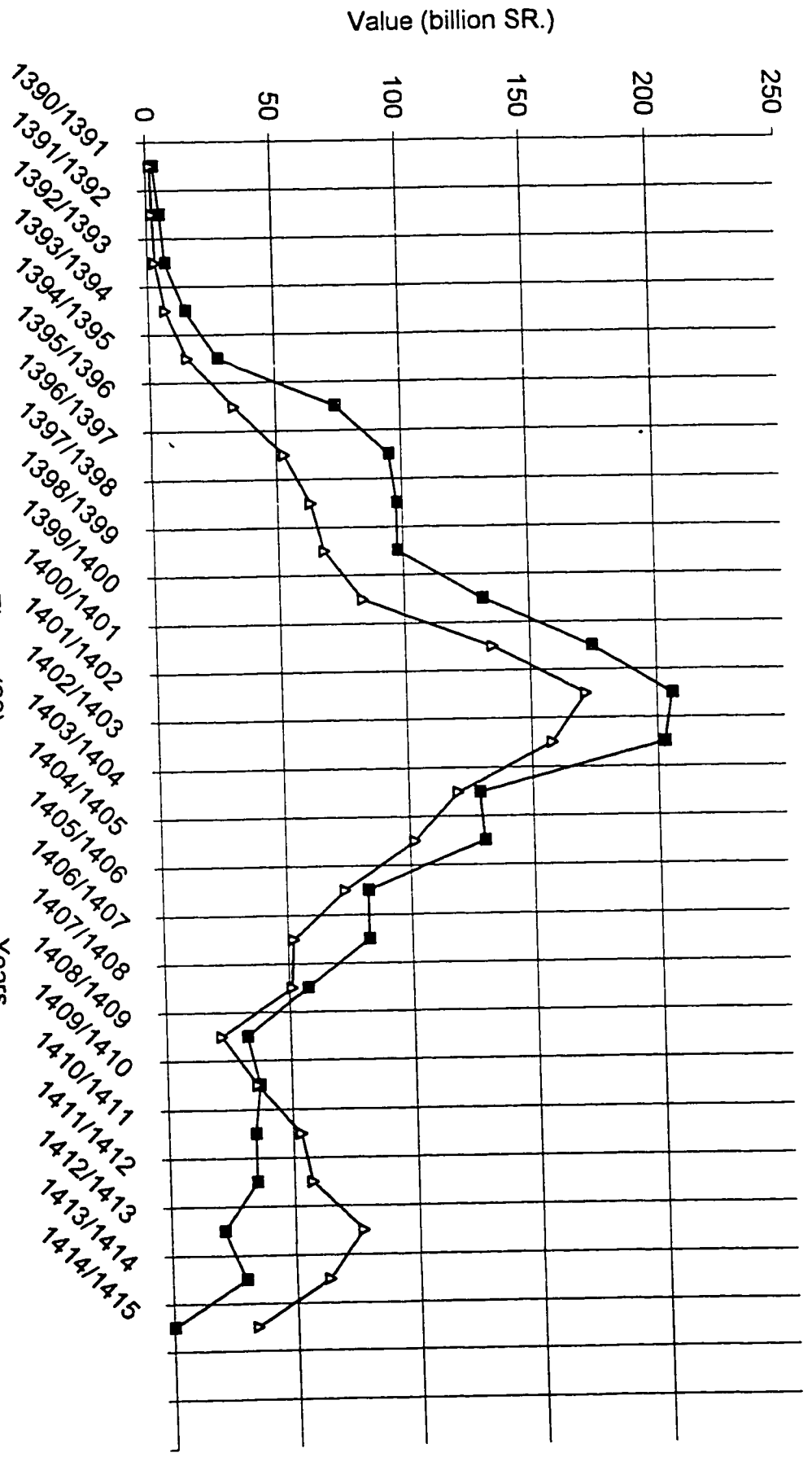

Total Appropriation for All Government Projects vs. Actual Expenditure
Value (billion SR.)
0
50
100
150
200
250
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years
Appropriation
Actual

Figure (29)

For example, in the year 1390/1391AH (1970), at the beginning of the period under review, the appropriation of the construction industry was about SR 2.66 billion while the actual cost was SR. 1.7 billion (64% of the appropriation value). During that year the financial capability of the Government was limited while the needs for projects were there. This was before the sharp increase in oil prices, the main source of income in Saudi Arabia. After the increase in oil prices took place, the appropriation for Government projects rose steadily and rapidly to peak at SR. 205.9 billion in 1401 AH (1981), according to the Statistical Yearbook 1402/1403AH. In fact, the actual expenditure in that year was about SR.172.6 billion according to the Saudi Arabian Monetary Agency Annual Report 1402AH (1982), which constitutes 83.8% of the appropriated cost. The appropriation for the construction industry in the Third-Development-Plan was SR. 842 billion according to the Statistical Yearbooks (1390-1416AH). The actual cost of constructed projects as reported in the Sixth-Development-Plan (1415-1420AH) was in fact SR. 687 billion. This brings the percentage of the

actual cost of construction to approximately 81.5% of the appropriated cost of this activity as shown at Table (36).

In more recent years between mid to late eighties, the appropriation for the construction industry was subjected to a considerable number of cuts. For example, the appropriation for construction in 1407/1408AH (1987) was about SR 57 billion whereas in the following year it dropped to approximately SR 32 billion. This was a drop of almost 43%. This was due to the decrease in oil prices.

Obviously, the Government suffered from reduced income, which had a direct impact on the budget of the construction industry. This was the case, not only in Saudi Arabia, but also in any country that depended on oil as the main source of income, which means mainly the Gulf Countries. "The construction sector reported a noticeable slow down rate in the Gulf Countries in the last two years as a result of low appropriation by the Governments of the Gulf. The low appropriation

was caused by the low income from oil, the main source of income." [ASHARQ AL-AWSAT, April 03, 1995]

The construction slow down was not a problem only in the Gulf area, but also in some other areas such as the USA. In an article about the construction industry in the USA, Tom Ichniowski mentioned that:

" Construction programs would take another hit in a package of spending cuts approved by House Appropriation Subcommittees". [Ichniowski, Tom, March 06,1995]

As a matter of fact, the overall appropriation of the Government did not differ that much from the actual expenditure as shown in Table (33). The actual expenditure was 98% of the total appropriation and the comparison between the trends of the actual expenditure and that of the overall appropriation by the Government is shown in Figure (30).

Table (33) Overall Appropriation by Government vs. Actual Expenditure

Gregorian Year	Hijriah Year	Overall Appropriation Billion SR.	Total Actual Expenditure Billion SR.	Percentage (%)
1970	1390/1391	006.4	006.5	101.6%
1971	1391/1392	010.8	007.0	65.00%
1972	1392/1393	013.7	009.0	66.00%
1973	1393/1394	022.8	014.5	64.00%
1974	1394/1395	045.7	026.0	57.00%
1975	1395/1396	110.9	060.0	54.10%
1976	1396/1397	131.3	100.0	76.20%
1977	1397/1398	134.3	126.0	93.80%
1978	1398/1399	144.6	147.0	101.7%
1979	1399/1400	185.9	176.5	95.00%
1980	1400/1401	245.0	223.0	91.00%
1981	1401/1402	298.0	273.0	91.60%
1982	1402/1403	313.4	265.0	84.60%
1983	1403/1404	260.0	246.0	94.60%
1984	1404/1405	260.0	228.5	87.70%
1985	1405/1406	200.0	200.0	100.0%
1986	1406/1407	200.0	168.0	84.00%
1987	1407/1408	170.0	190.0	111.7%
1988	1408/1409	141.0	145.0	102.8%
1989	1409/1410	140.0	157.0	112.1%
1990	1410/1411	146.7	211.0	144.0%
1991	1411/1412	146.7	274.0	186.7%
1992	1412/1413	184.9	242.5	131.2%
1993	1413/1414	216.9	203.5	093.8%
1994	1414/1415	172.7	164.0	095.0%

Sources: 1. Sixth Development Plan (1415-1420AH)

2. Statistical Yearbooks (1390-1416AH)

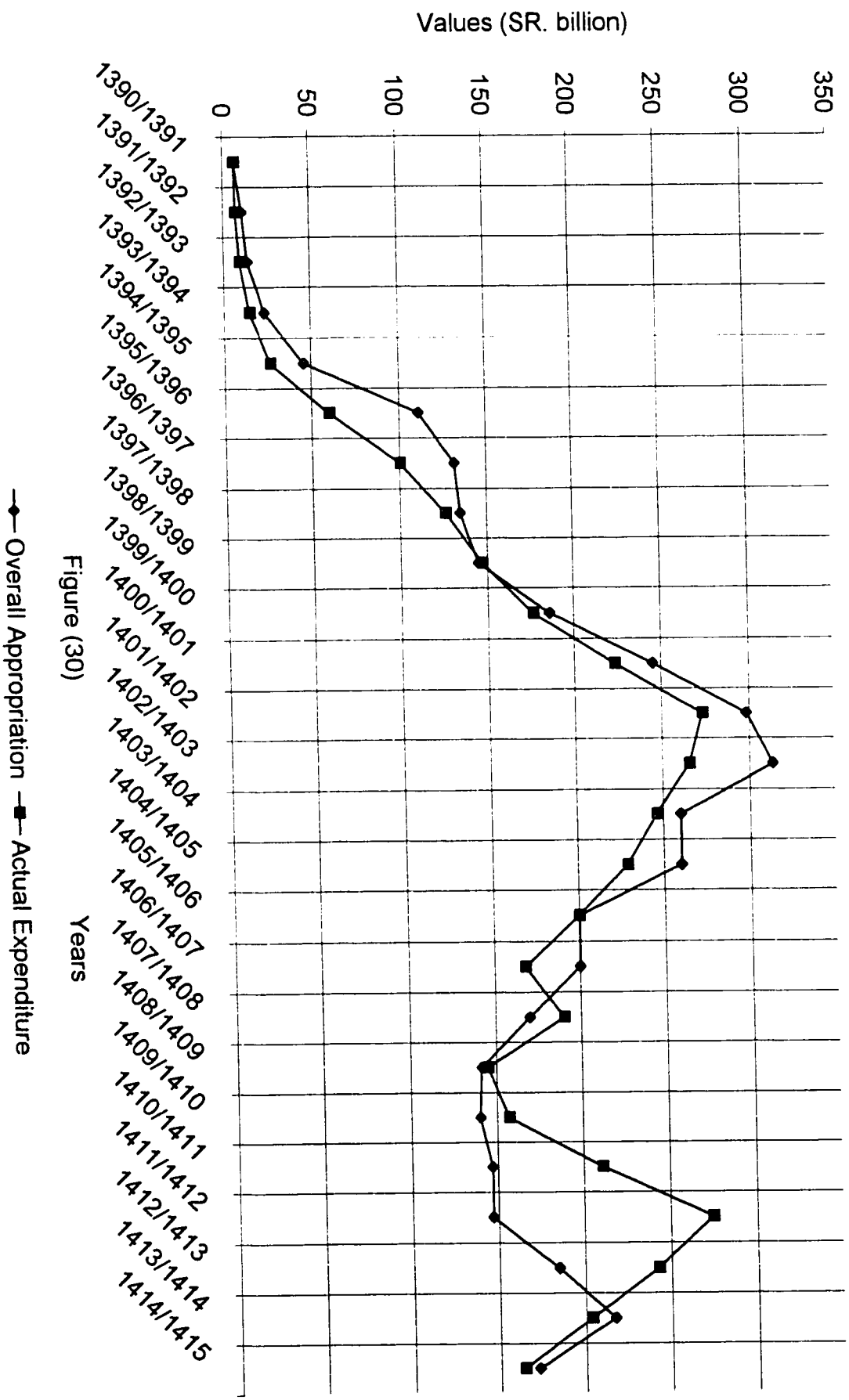

Overall Appropriation by Government vs. Actual Expenditure
Values (SR. billion)
0
50
100
150
200
250
300
350
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years
Overall Appropriation
Actual Expenditure

Figure (30)

On the other hand, actual expenditure on projects dropped by at least 16% from the appropriation for the projects as shown previously in Table (32). The reason behind that drop was that the Government had completed most of the infrastructure system and had to divert its attention to the development of other sectors.

Although there have been cut in the appropriation for projects especially in recent years, yet the total actual spending over construction, during the time from year 1390 to 1415AH, was about 40% of the total actual expenditure by the Government as shown in Table (34). When the actual expenditure by Government is compared with the actual expenditure of projects as shown in Table (34), it is found that the percentages vary between 15.2% and 63%. In Figure (31) these comparisons are shown graphically to reveal how these trends act against each other.

Table (34) Total Actual Expenditure by Government vs. Projects Actual Expenditure

Gregorian Year	Hijriah Year	Total Actual Expenditure (SR billion)	Projects Actual Expenditure (SR billion)	Percentage (%)
1970	1390/1391	006.5	001.70	26.2%
1971	1391/1392	007.0	002.00	28.6%
1972	1392/1393	009.0	003.00	33.0%
1973	1393/1394	014.5	006.70	46.0%
1974	1394/1395	026.0	015.00	57.7%
1975	1395/1396	060.0	033.00	55.0%
1976	1396/1397	100.0	053.00	53.0%
1977	1397/1398	126.0	063.00	50.0%
1978	1398/1399	147.0	068.00	46.0%
1979	1399/1400	176.5	083.00	47.0%
1980	1400/1401	223.0	135.00	60.5%
1981	1401/1402	273.0	172.00	63.0%
1982	1402/1403	265.0	158.00	59.6%
1983	1403/1404	246.0	120.00	48.8%
1984	1404/1405	228.5	102.00	44.7%
1985	1405/1406	200.0	073.00	36.5%
1986	1406/1407	168.0	052.00	31.0%
1987	1407/1408	190.0	051.00	26.8%
1988	1408/1409	145.0	022.00	15.2%
1989	1409/1410	157.0	036.00	23.0%
1990	1410/1411	211.0	053.00	25.1%
1991	1411/1412	274.0	057.00	20.8%
1992	1412/1413	242.5	077.00	31.8%
1993	1413/1414	203.5	063.00	31.0%
1994	1414/1415	164.0	034.00	20.7%

Sources:
1. Sixth Development Plan (1415-1420AH)
2. Statistical Yearbooks (1390-1416AH)

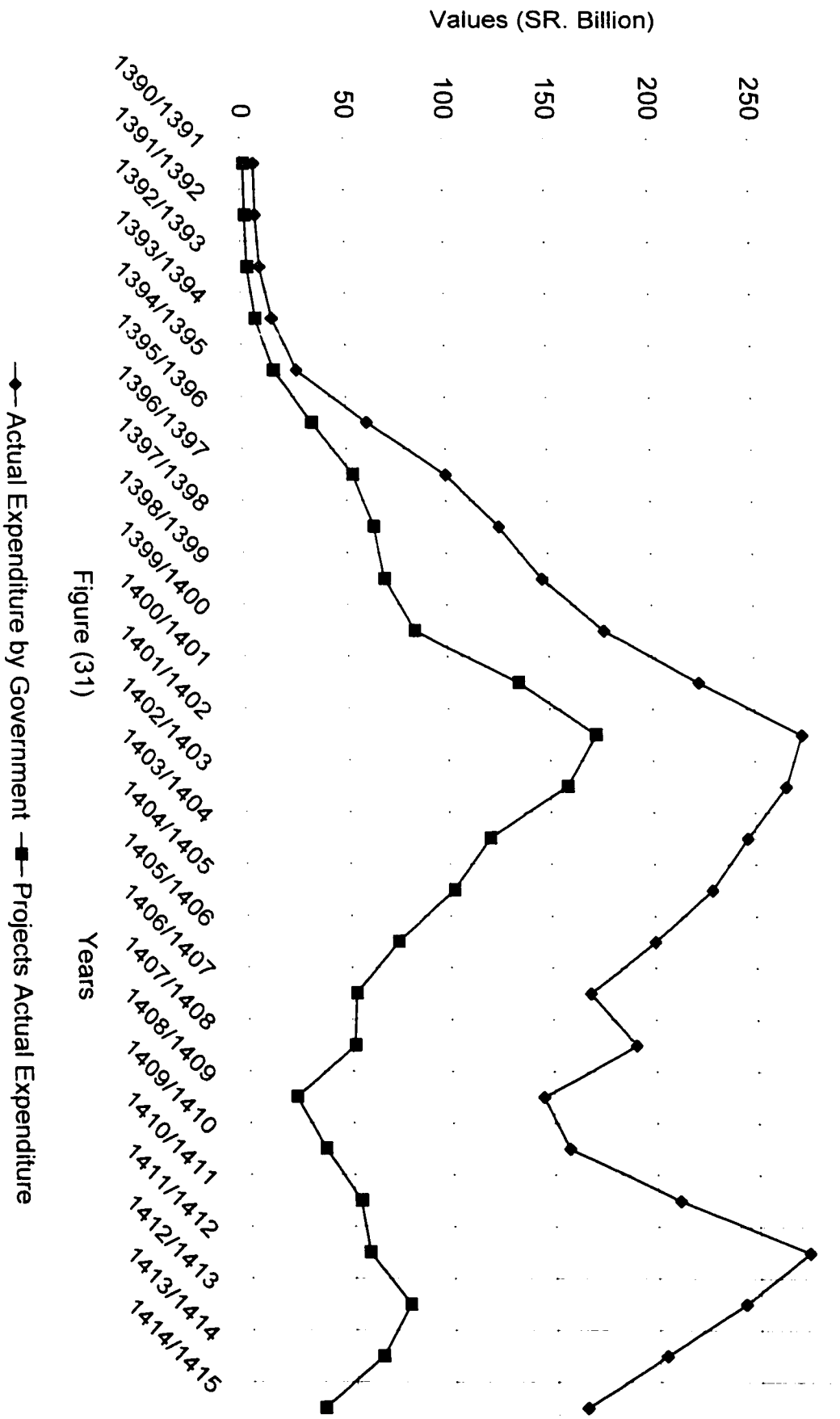

Total Actual Expenditure by Government vs. Projects Actual Expenditure
Values (SR. Billion)
300
250
200
150
100
50
0
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years
Actual Expenditure by Government
Projects Actual Expenditure

Figure (31)

In addition, the comparisons between the following areas are shown in Table (35) and Figure (32):

1. Government overall appropriation (SR. 3,901.7 billion)

2. Government actual expenditure (SR. 3,862.9)

3. Projects overall appropriation (SR. 1,824.7)

4. Projects actual expenditure (SR. 1,533.4)

Finally, Table (36) and Figure (33) show a comparison between what was appropriated per each development plan and what was the actual spending over the construction sector in general. As can be seen from the table, during the First Development Plan, the actual expenditure on projects was about 51% of the total appropriation. In the Second Development Plan, the actual expenditure increased to 61% of the total appropriation of the Second Development Plan.

Actual expenditure as a percentage of the total appropriation continued its trend of increasing to its maximum during the Fifth Development Plan with 201% of the total appropriation that was planned for projects in that plan.

During the Fifth Development Plan, the average appropriation was SR.28 billion while the average actual spending was SR. 56 billion. The increase in oil prices that resulted in an increase in the income of the Government caused the increase in the actual spending over the construction sector. During the Fourth Development Plan, some of the projects had to be postponed or scaled down due to the low income generated by the Government. Those projects had to be completed during the Fifth Development Plan. This is another reason for the increase in the actual expenditure over the construction sector.

Table (35) Total Appropriation for Government & Projects Appropriation vs. Actual Expenditure

Gregorian Year	Hijriah Year	Overall Appropriation (SR billion)	Total Actual Expenditure (SR billion)	Projects Total Appropriation (SR billion)	Projects Actual Expenditure (SR billion)
1970	1390/1391	006.4	006.4	002.65	001.70
1971	1391/1392	010.8	007.0	005.06	002.00
1972	1392/1393	013.7	009.0	006.81	003.00
1973	1393/1394	022.8	014.5	014.47	006.70
1974	1394/1395	045.7	026.0	026.92	015.00
1975	1395/1396	110.9	060.0	073.38	033.00
1976	1396/1397	131.3	100.0	094.79	053.00
1977	1397/1398	134.3	126.0	097.72	063.00
1978	1398/1399	144.6	147.0	097.61	068.00
1979	1399/1400	185.9	176.5	131.50	083.00
1980	1400/1401	245.0	223.0	174.74	135.00
1981	1401/1402	298.0	273.0	205.93	172.00
1982	1402/1403	313.4	265.0	202.81	158.00
1983	1403/1404	260.0	246.0	128.50	120.00
1984	1404/1405	260.0	228.5	130.10	102.00
1985	1405/1406	200.0	200.0	082.09	073.00
1986	1406/1407	200.0	168.0	082.09	052.00
1987	1407/1408	170.0	190.0	057.08	051.00
1988	1408/1409	141.0	145.0	032.30	022.00
1989	1409/1410	140.0	157.0	037.09	036.00
1990	1410/1411	146.7	211.0	034.69	053.00
1991	1411/1412	146.7	274.0	034.69	057.00
1992	1412/1413	184.9	242.5	021.26	077.00
1993	1413/1414	216.9	203.5	029.45	063.00
1994	1414/1415	172.7	164.0	021,01	034.00

Sources: 1. Sixth Development Plan (1415-1420AH)

2. Statistical Yearbooks (1390-1416AH)

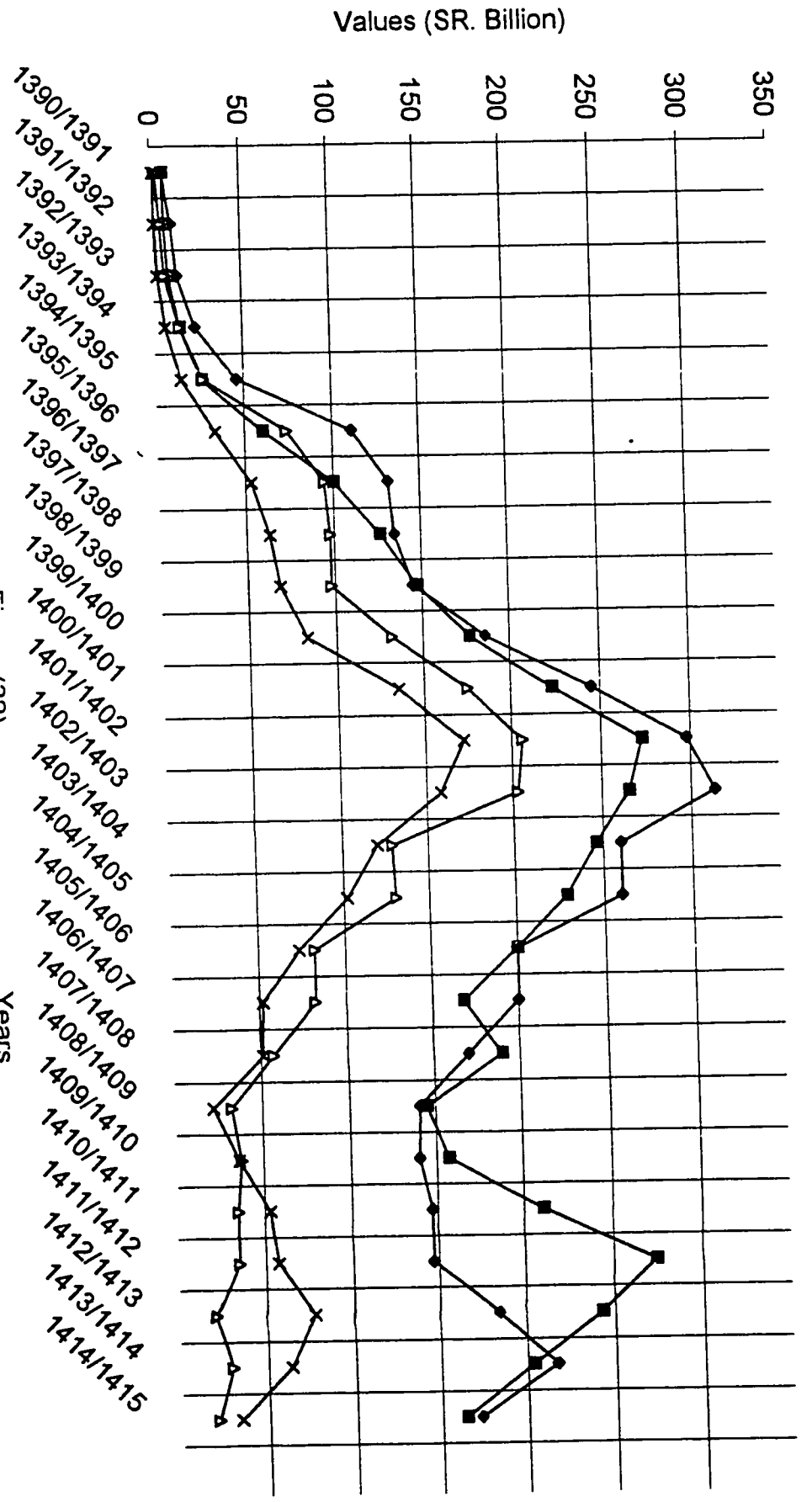

Total Appropriation for Government & Projects Appropriation vs. Actual Expenditure
Values (SR. Billion)
0
50
100
150
200
250
300
350
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years
Government Overall Appropriation
Government Actual Expenditure
Projects Appropriation
Projects Actual Expenditure

Figure (32)

Table (36) The Appropriation of all Projects per Each Development Plan vs. Actual Expenditure

Gregorian Year	Hijriah Year	Development Plan	Total Appropriation Value (SR billion)	Actual Expenditure Value (SR billion)	Percentage (%)
1970-1975	1390-1395	1	055.9	028.4	51%
1975-1980	1396-1400	2	496.1	300.0	61%
1980-1985	1401-1405	3	842.1	687.0	81.5%
1985-1990	1406-1410	4	290.7	234.0	80.5%
1990-1995	1411-1415	5	141.1	284.0	201%
Total			**1826.0**	**1533.4**	**84.0%**

Sources:

1. Statistical Yearbooks (1390-1416AH)
2. Annual Report of The Saudi Arabian Monetary Agency
3. Achievements of the Development Plans 1390-1415AH (1970-1995)
4. Fifth Development Plan

The Appropriation for All Government Projects per Each Development Plan vs. Actual Expenditure

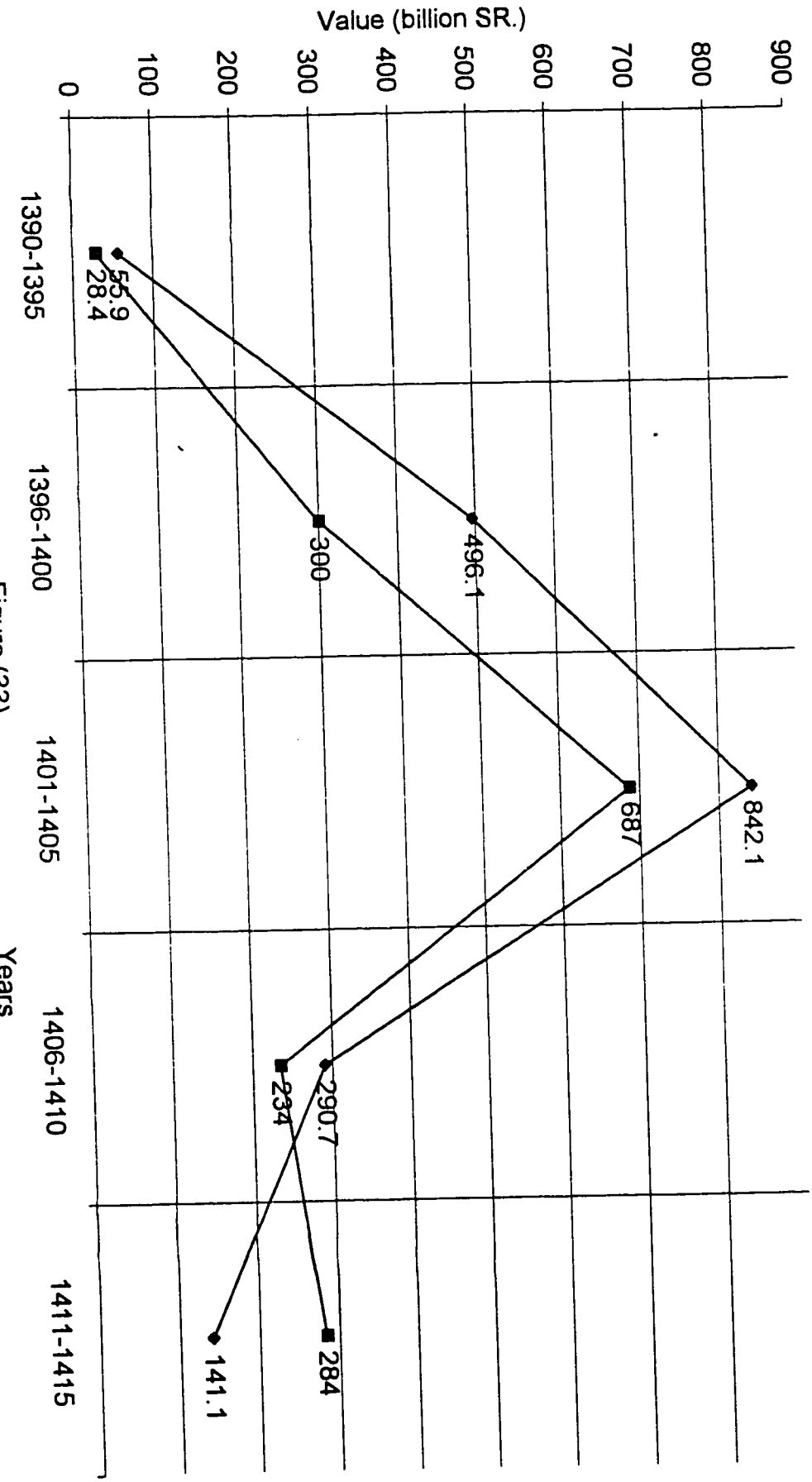


Figure (33)

4.2 ANALYSIS OF DATA FOR OPERATION & MAINTENANCE

Prior to the year 1402/1403 (1982), there was no special section in the Government's budget for Operation and Maintenance. In 1402/1403 (1982) the Government decided to have all the appropriation of the third section of the budget for Operation and Maintenance activities. Before that, the third section of the budget was for subsidies only. In the year 1402/1403 (1982), all the appropriations for the subsidies were included in the second section of the budget. [Statistical Yearbook, 1403AH]

By having a one line item in the Government budget for Operation and Maintenance, the Government wanted to highlight the importance of these activities. In fact it was a shift from just building new projects to operating and maintaining existing projects.

Thousands of projects were built and hundreds of billions of Saudi Riyals were spent during the first three development plans. Some of these projects suffered from lack of quality. The Government was rushing to construct as much as they could, without paying attention to

quality or to cost. The rush to complete these projects and the purchase of high technology incorporated in them cost the Government a great deal of money.

The Government realized that these projects, some of which were high tech projects, would deteriorate rapidly unless they were maintained properly and regularly. Failure to take such action would result in the Government having to fund the building of new projects to replace the deteriorated ones at even greater expense. Maintenance was one part of the problem. The second part was the operation of such projects. Government had to spend a great deal of money to train people to operate such facilities.

For a period of thirteen years from 1402/1403 (1982), the Government appropriated approximately SR. 308,022,800,000 for the operation and maintenance of existing projects as shown earlier in Table (4). As can be seen, the Government has been appropriating on an average of SR. 23,694,062,000 each year for Operation and

Maintenance. The peak of appropriation for Operation and Maintenance was in the first three years (1402-1405AH).

Recently, the appropriated costs of Operation and Maintenance have begun to match those of the projects. The appropriation for operation and maintenance in the year 1414/1415 (1995) was SR. 20,205,900,000 as reported in the Statistical Yearbook of the year 1415/1416AH. If this value is to be compared with the one for projects for the same year [Table (2)], it can be concluded that they were almost the same where the appropriation for projects in that year was SR. 21,014,000,000. The reason for this was that the Government had almost completed all of their infrastructure projects and shifted their attention toward operation and maintenance activities. This step was not to stop initiating new projects but rather to keep the projects already built in very good condition so that they would last longer. In addition, as stated in the sixth development plan, the Government would like the private sector to take over the responsibility of initiating projects.

4.3 CONSTRUCTION MATERIALS

Construction materials are very important for the construction industry. In Saudi Arabia, construction materials are available through two sources, either imported or locally manufactured.

During the period from 1397 to 1414AH (1976-1994), about 96 million tons of construction materials, other than cement, were imported to the Kingdom. [Statistical Yearbooks (1390-1416AH)] As an example of imported construction materials, cement was one of the materials that were in high demand. The demand for cement during the construction boom time and even earlier was more than the quantities produced locally. To overcome this problem it was necessary to import this material from abroad. The imported quantities of cement increased from 280,778 tons in 1390/1391AH to 14,124,315 tons in 1403/1404AH. After 1403/1404AH the quantities of cement imported started to decrease until they reached their lowest level in 1411/1412AH at 149,625 tons.

While construction material industries had existed in the Kingdom for many years, in the past these were on a very small scale. The large number of projects, initiated after the sharp increase in oil prices back in the early seventies, accounts for the dramatic growth in this sector.

Cement production was one of those industries that were formerly small in a scale. The production of cement in 1390/1391AH (1970) was 703,371 tons. [Statistical Yearbook 1399/1400AH (1979)] By 1397/1398AH (1977), production was more than double that figure at 1,637,795 tons. Three years later the production was almost four times that of 1397/1398AH. If this is to be related to the size and quantity of projects started in that period, it is apparent that the Government was enjoying a high income and was spending generously on the construction industry and related business. Growth continued until the production of cement in 1415AH (1995) reached a quantity of 17 (+) million tons. The construction industry was at its peak and the increase in the production of cement was a natural result.

Other example of manufactured construction materials the gypsum and plaster. The magnitude and the quantity of projects initiated by Government, Semi-Government companies and the private sector affected the production of these materials. From 1390AH to 1415AH, the total production of the above mentioned materials was about 3,213,255 tons.

Although the production of lime, another construction material, ceased in 1405AH (1984), the total production between 1390 and 1405AH was about 259,113 tons. [Statistical Yearbooks (1390-1405AH)] The production during the two years before the company ceased production was at a peak with 30,801 tons and 33,906 tons respectively.

There were other factories that produced other types of construction materials. Up to the end of 1414AH (1994), there were about 439 factories producing construction materials including cement, gypsum, plaster and lime, chinaware, ceramic and glass. Those factories hired

around 37,860 employees with total financing of about SR.20 billion. [Statistical Yearbook 1414AH (1994)]

The import and production of construction materials affected the construction industry positively. Without the availability of these quantities of construction materials, construction would not have taken place at the same magnitude. Another effect of import and produced construction materials was the creation of many new jobs. As mentioned before, the factories that produced construction materials employed around 37,000 employees. By adding to this figure the employees who were working with the businessmen who were importing construction materials, it is possible to see how many job opportunities were created because of these items.

The development of projects created a chain reaction. Government projects affected the decision of the private sector to build factories for construction materials. Building factories affected the availability of jobs, which resulted in an increase in population. This produced

demand for more schools, clinics, supermarkets, houses and many more services. The more you expand in the construction industry, the more services you need.

4.4 Construction Industry & Development of the Country

The construction industry played a great role in the development of the country. During the time from the year 1390AH to the year 1410 AH, the Government actually spent an amount of SR. 1,355.52 billion as shown in Table (37) [Sixth-Five-Year-Development-Plan (1415-1420)] over the development of the following sectors:

1. Industrial Resources

2. Human Resources

3. Social and Health resources

4. Infrastructure System

Among the above, the infrastructure system counted for 40.1% of the total actual expenditure of the Government (SR. 543 billion) over

the period from 1390 to 1410AH. During the Fifth Five-Year-Development-Plan, two sections replaced the infrastructure system.

The first one was the Transportation and Communication section and the second one was the Municipality and Housing section. During the Fifth Development Plan, the Transportation and Communication sectors accounted for 12.9% of the total spending by the Government (SR. 42.2 billion) while the Municipality and Housing sectors accounted for 9.9% (SR. 32.4 billion). [Sixth-Five-Year-Development-Plan (1415-1420AH)]

Table (37) The Actual Expenditure on the Development of the Country

(SR. billion)

Development Plans	First	Second	Third	Forth	Fifth
Industrial Resources	9.5	97.3	192.2	71.2	34.7
Human Resources	70.3	51.0	115.0	115.1	155.0
Social and Health resources	35.2	27.6	61.2	61.9	63.3
Infrastructure System	14.1	171.3	256.8	100.7	74.8 (*)
Total	**34.1**	**347.2**	**625.2**	**348.9**	**327.8**

Sources:

1. Sixth-Five-Year-Development-Plan (1415-1420AH)

(*) In the Fifth Development Plan Transportation & Communication and Municipality & Water replaced the infrastructure system section.

4.4.1 Construction Accomplishments

During the period from the year 1390AH to the year 1415AH the construction industry went through a revolution with the Government, Semi-Government Companies and the private sectors fully involved in construction activities. The result of these efforts was quite incredible. The country was transformed from one with only the most basic elements of an infrastructure to a nation with a modern, sophisticated system. The following are some examples of the accomplishments of the construction industry:

- A rail link between Dammam in the Eastern Province and Riyadh in the Central Province, including a few towns in between was established in 1371AH (1952).

- The total production of cement increased from 703,371 tons in 1390/1391AH (1970) to 17(+) million tons in 1415AH (1995).

- The number of telephone lines increased from 31,247 telephone lines in 1390/1391AH (1970) to 1.6 million telephone lines in 1415AH (1995).

- The length of paved roads increased from 7,500 Km in 1390/1391AH to 42,200 Km in 1415AH (1995).

- The length of earth-surfaced roads increased from 3,500 Km in 1390/1391AH to 96,000 Km in 1415AH (1995).

- The number of water desalination plants increased from 3 in 1390/1391AH to 14 in 1415AH (1995) with a capacity of 715.6 million cubic meters of water per year.

- In 1395/1396AH (1975), there were only 27 berths in service all over the kingdom. In 1415/1416AH (1995) the total number of berths rose to 182.

- The Government had already completed the construction of 25 airports by 1413/1414AH (1994).

- Up to 1415AH (1995) the Government had established 30,000 lines for telex services.

- The number of schools (all types) increased from 3,200 schools in 1390/1391AH (1970) to 22,000 schools in 1415AH (1995).

- Up to 1415AH (1995), 186 dams had been constructed to hold 775.0 million cubic meter of water. The cost of such dams was about SR. 2.7billion.

The above are some examples of the construction achievements. There are so many other achievements that were mentioned earlier in chapters two and three. These achievements are evidence of how wisely the Government distributed their income.

4.5 Government Departments & the Construction Industry

The appropriated cost of the projects undertaken by or for Government departments was presented earlier in chapter two. It was extremely difficult to present the actual cost of these projects. The records are not sufficient and in many cases are not available at all. A few departments have been chosen as examples for the study. Where adequate data was found, they have been presented as part of this study. The following departments were chosen to show examples of the accomplishments and the trends in the construction industry in the Kingdom of Saudi Arabia. The analyses that are presented in Table (38) are just to give an example of the appropriated cost of the construction done for the Government departments. Thereafter, a brief analysis of the following departments will be presented:

1. Educational Departments
2. Ministry of Industry and Electricity
3. Ministry of Agriculture & Water

Table (38) Analysis of the Gov. Overall and Projects Budget vs. those of Ministries

	1	2	3	4	5	6	7
Gov. Department	**Gov. Approp.**	**Ministry Approp.**	**%**	**Gov. Approp. For Projects**	**Dept. Approp. For Projects**	**%**	**%(*)**
Education	SR. 3,901.7 billion	SR. 464.8 billion	12%	SR. 1824.7 billion	SR. 100.5 billion	5.60%	21.60%
Health & Red Crescent	SR. 3,901.7 billion	SR. 148.5 billion	3.80%	SR. 1824.7 billion	SR. 37.1 billion	2.03%	25.00%
Municipalities & Water	SR. 3,901.7 billion	SR. 253.4 billion	6.50%	SR. 1824.7 billion	SR. 190 billion	10.40%	75.00%
Transportation & Comm.	SR. 3,901.7 billion	SR. 376.1 billion	9.60%	SR. 1824.7 billion	SR. 217.9 billion	12.00%	58.00%

Gov. Government

Dept. Department

Approp. Appropriation

(*) % of projects appropriation to the total appropriation of each department

3= 2/1

6= 5/4

7= 5/2

Source: 1. Statistical Yearbooks (1390-1415AH)

4. Ministry of Health & Red Crescent

5. Communication Departments

6. Ministry of Municipal and Rural Affairs

A. EDUCATIONAL DEPARTMENTS

The total appropriation for the projects of the educational sector was approximately SR. 100 billion (24.2% of the total appropriation for the educational sector). That kind of appropriation allowed the educational sector to achieve its objectives of having enough schools and colleges.

This figure represents at least 5.5% of the total appropriation by the Government for projects as shown in Table (39). Although this percentage is small, it represents SR 4 billion per year for Educational Projects. Comparison between the overall appropriation by Government for projects and those of the Educational Departments as shown in Figure (34) does in fact show the effect of the overall appropriation on those of the Educational Departments. Since there is no actual data

published or available anywhere, the data in Table (40) and Figure (35) are presented to show a comparison between the total appropriation of the educational sector and the educational projects appropriation.

B. MINISTRY OF INDUSTRY AND ELECTRICITY

The Ministry of Industry and Electricity has been fully occupied since its establishment trying to satisfy all the demands for electrical power. The total appropriation for this sector was SR. 27.1 billion over the period from 1396/1397 to 1411/1412AH. This represents 1.7% of the total appropriation for all Government projects over the same period. The average appropriation was around SR. 1.7 billion per year.

Power generation is one part of the Ministry's activities. The power generated, as reported in the Annual Reports by the Saudi Arabian Monetary Agency, in 1390/1391AH (1970) was about 1.8 billion kilowatt-hours.

Table (39) The Appropriation of all Projects per Each Development Plan vs. Educational Appropriation

Gregorian Year	Hijriah Year	Total Appropriation (SR billion)	Educational Appropriation (SR billion)	Percentage (%)
1970-1975	1390-1395	055.9	02.8	5.0 %
1975-1980	1396-1400	496.1	35.3	7.1 %
1980-1985	1401-1405	842.1	40.4	4.8 %
1985-1990	1406-1410	290.7	14.4	5.0 %
1990-1995	1411-1415	141.1	07.2	5.1 %
Total		**1826.0**	**100.0**	**5.5%**

Sources:

1. Statistical Yearbooks (1390-1416AH)

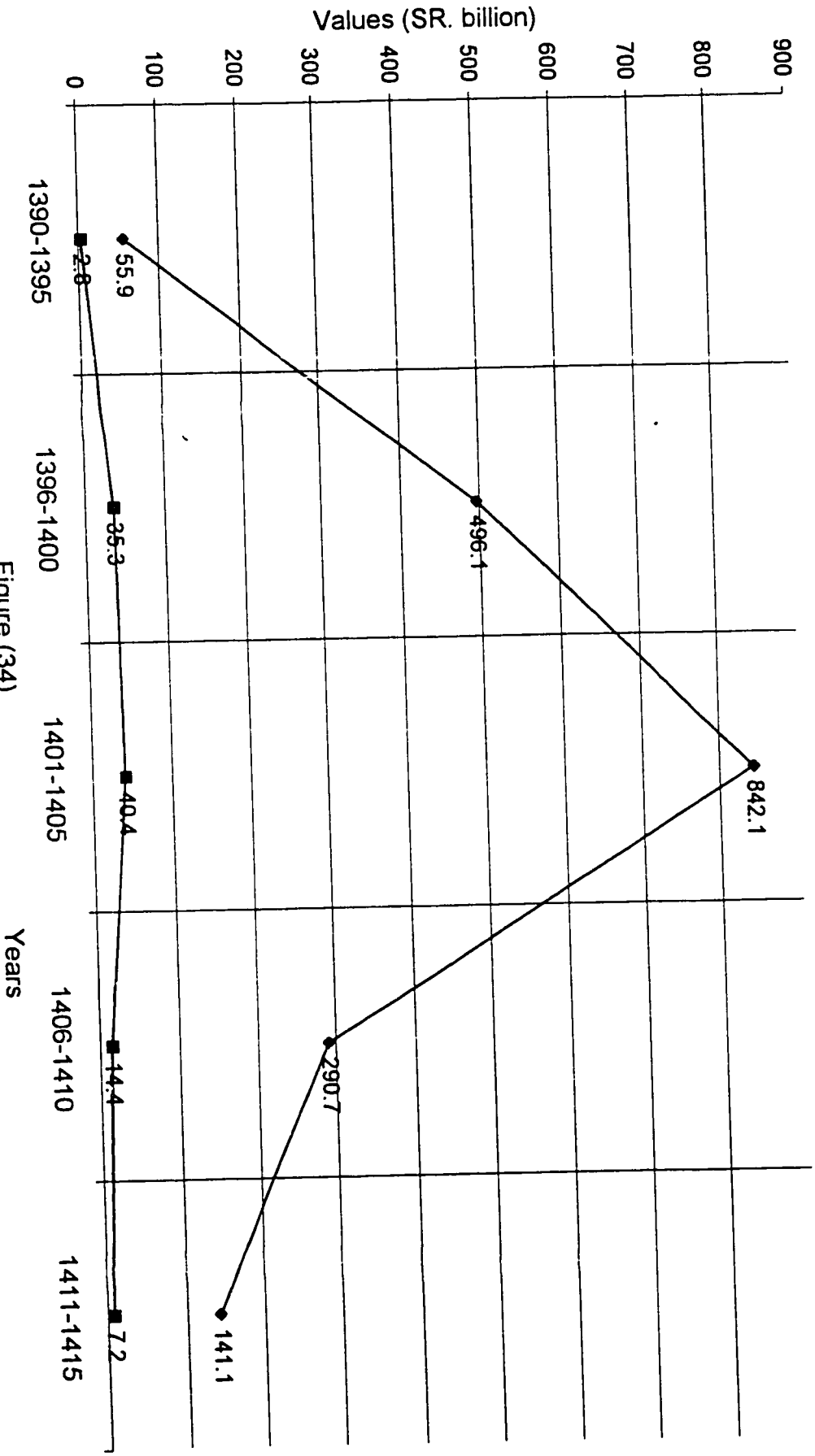

Government Appropriation for All Projects vs. Appropriation for Educational Projects
Values (SR. billion)
900
800
700
600
500
400
300
200
100
0
1390-1395
1396-1400
1401-1405
1406-1410
1411-1415
Years
2.8
55.9
35.3
496.1
40.4
842.1
14.4
290.7
7.2
141.1
Government Appropriation for Projects
Appropriation for Educational Projects

Figure (34)

Table (40) Government Appropriation for Educational Sector vs. Educational Projects Appropriation

Gregorian Year	Hijriah Year	Government Appropriation (SR billion)	Projects Appropriation (SR billion)	Percentage (%)
1970	1390/1391	01.0	00.1	10.0 %
1971	1391/1392	01.2	00.1	08.3 %
1972	1392/1393	01.6	00.3	18.8 %
1973	1393/1394	02.2	00.7	31.8 %
1974	1394/1395	03.7	01.6	43.2 %
1975	1395/1396	12.9	07.4	57.4 %
1976	1396/1397	14.0	08.2	58.6 %
1977	1397/1398	15.0	07.9	52.7 %
1978	1398/1399	15.2	05.1	33.6 %
1979	1399/1400	17.4	06.8	39.1 %
1980	1400/1401	21.3	07.7	36.2 %
1981	1401/1402	23.7	08.3	35.6 %
1982	1402/1403	29.7	10.1	34.0 %
1983	1403/1404	26.0	06.3	24.2 %
1984	1404/1405	28.7	08.0	27.9 %
1985	1405/1406	23.0	04.2	18.3 %
1986	1406/1407	19.6	04.2	21.4 %
1987	1407/1408	22.4	02.8	12.5 %
1988	1408/1409	22.2	02.0	09.0 %
1989	1409/1410	22.5	01.5	06.6 %
1990	1410/1411	24.6	01.3	05.3 %
1991	1411/1412	29.2	01.6	05.5 %
1992	1412/1413	29.6	01.3	04.4 %
1993	1413/1414	30.3	01.8	06.0 %
1994	1414/1415	27.8	01.2	04.3 %

Sources:

1. Statistical Yearbooks (1390-1416AH)

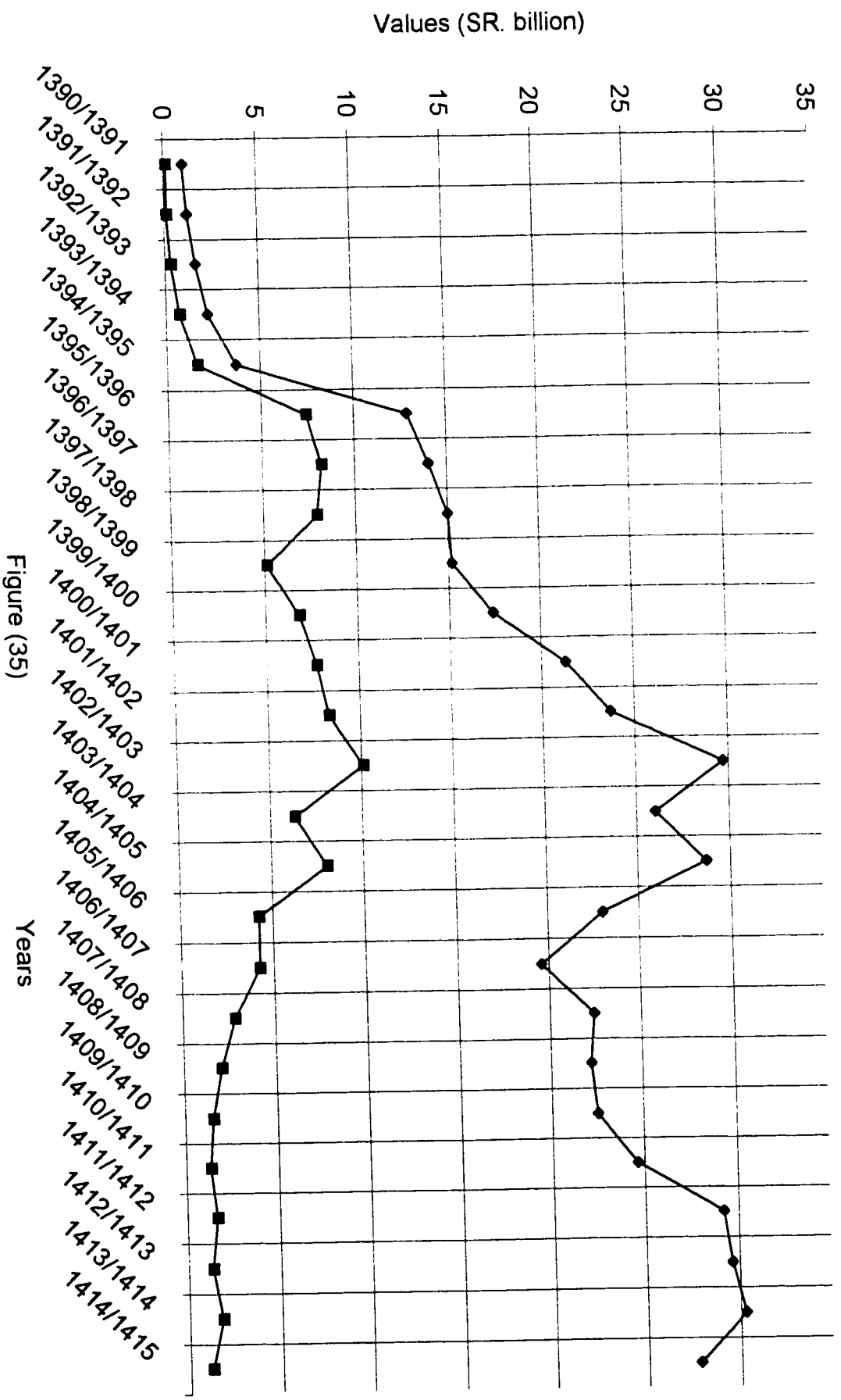

Government Appropriation for Educational Sector vs. Educational Projects Appropriation
Values (SR. billion)
0
5
10
15
20
25
30
35
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years

Figure (35)

Two parties consumed power generated: industrial customers on one hand and residential, commercial and other users on the other. Together they accounted for 92% of the power generated.

Fourteen years later mainly in 1404AH (1984), the power generated had increased to (39) billion kilowatt-hours, with consumption was about 92.7% of the power generated. Table (41) shows that the year 1404 has been used as the base (100%) to show the indices of the production of electricity while Figure (36) shows the comparison between the installed capacity, usable capacity, peak load and the power generated.

In 1408/1409AH (1988), the power generated jumped to a total of (61) billion kilowatt-hours while consumption reached a total of 90% of the total power generated.

In 1415AH (1995) the power generated was about (94) billion kilowatt-hours. The consumption was (85) billion kilowatt-hours. This represents ninety one percent (91%) of the power generated.

By analyzing these figures, we may conclude that the power generated increased year by year and the same trend will continue as long as construction goes on, new facilities are built or existing facilities are being expanded and/or upgraded.

We may also conclude that the consumption of electrical power varies between 89% and 92% of the power generated. This might give an indication that although the Ministry faced tough times when the sharp increase in demand took place, with the financial support of the Government and hard work, the Ministry was able to overcome those problems and managed to provide power exceeding the requirements.

Industrializing the country and transforming it from a country that imported almost every thing it needs to a country that can manufacture some of its requirements was another achievement of the Ministry. The Ministry of Industry and Electricity was entrusted with the task of guiding others interested in participating in industrial business. The Ministry was the only body in the Government that issued permits for

building factories. Their role was/is to study any proposal and evaluate the needs of the country and then either grant the permit or reject the proposal.

This procedure allows the Ministry to monitor the construction of new factories in such a way that the location of the factory and the product meet the needs of the country.

The Ministry of Industry and Electricity did not only affect construction through their procedures, but also became involved in construction. The Ministry constructed industrial cities all over the Kingdom. Jubail and Yanbu were established to serve the purpose of developing the basic industries in the Kingdom. In addition, the Ministry of Industry and Electricity has established industrial cities at Riyadh, Jeddah, Dammam, Qassim, Al-Hassa and Makkah AlMukarramah. These industrial cities encompass a total area of 32.2 million square meters, with a total cost of about SR. 1.9 billion. [Achievements of the Development Plans 1390-1416 (1970-1996)]

Table (41) Indices of Production of Electricity [1404/1405=100]

Gregorian Year	Hijriah Year	Installed capacity	Usable capacity	Peak load	Power generated
1970	1390	2.9	2.9	3.5	4.6
1974	1394	7.9	7.9	8.5	9.2
1979	1399	37.8	34.8	34.8	38.1
1984	1404	100.0	100.0	100.0	100.0
1985	1405	107.8	117.5	110.8	111.6
1986	1406	121.7	124.5	120.6	124.1
1987	1407	124.9	125.8	125.7	135.8
1988	1408	127.1	128.3	131.7	143.5
1989	1409	138.5	139.0	136.1	154.4
1990	1410	138.7	138.9	143.2	162.7
1991	1411	142.2	142.1	151.6	173.5
1992	1412	143.3	143.8	169.2	185.6
1993	1413	146.9	148.7	184.3	206.2
1994	1414	150.2	147.9	204.5	228.2
1995	1415	150.2	147.5	198.8	235.4

Sources:

1. Achievements of the Development Plans 1390-1416AH (1970-1996)

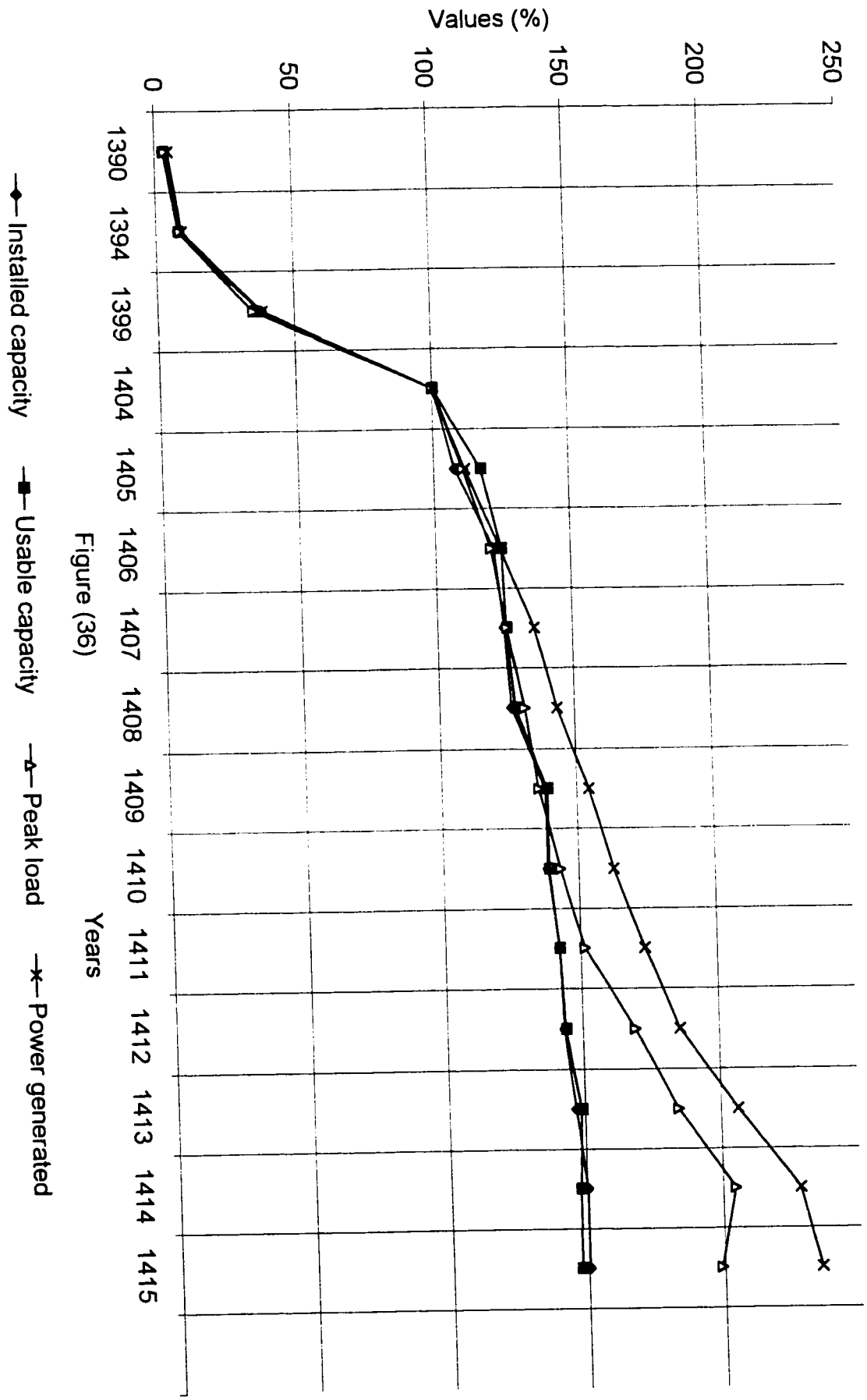

Indices of Production of Electricity
Values (%)
250
200
150
100
50
0
1390
1394
1399
1404
1405
1406
1407
1408
1409
1410
1411
1412
1413
1414
1415
Years
Installed capacity
Usable capacity
Peak load
Power generated

Figure (36)

C. MINISTRY OF AGRICULTURE & WATER

The total appropriation for projects done by or for the Ministry of Agriculture and Water during the time from the year 1390/1391 to the year 1410/1411AH was SR. 52.3 billion [Statistical Yearbooks (1390-1416AH)]. The average of appropriation for projects was SR 2.5 billion per year. By analyzing both Table (42) and Figure (37), it is found that the total appropriation of projects for the Ministry represents 3.6% of the total Government appropriation for projects.

D. MINISTRY OF HEALTH & RED CRESCENT

The total appropriation for the projects of the Ministry of Health & Red Crescent was in the range of SR. 37 billion. Comparing this amount with the overall appropriation of the Ministry as shown in Table (43) and Figure (38), it is found that the project appropriation represents 25% of the overall appropriation. The Ministry carried the load of building a total of 175 hospitals while other Government sectors built a total of 36 hospitals.

Table (42) Projects Total Appropriation vs. Appropriation of Projects for Ministry of Agriculture & Water

Gregorian Year	Hijriah Year	Total Government Appropriation (SR billion)	Appropriation of Projects for Ministry of Agriculture & Water (SR billion)	Percentage (%)
1970-1975	1390-1395	055.9	03.2	5.7%
1975-1980	1396-1400	496.1	10.1	2.1%
1980-1985	1401-1405	842.1	27.3	3.2%
1985-1990	1406-1410	290.7	10.4	3.5%
Total		**1684.8**	**51.0**	**3.0%**

Sources:

1. Statistical Yearbooks (1390-1416AH)

Projects Total Appropriation vs. Appropriation of Projects of Ministry of Agriculture & Water

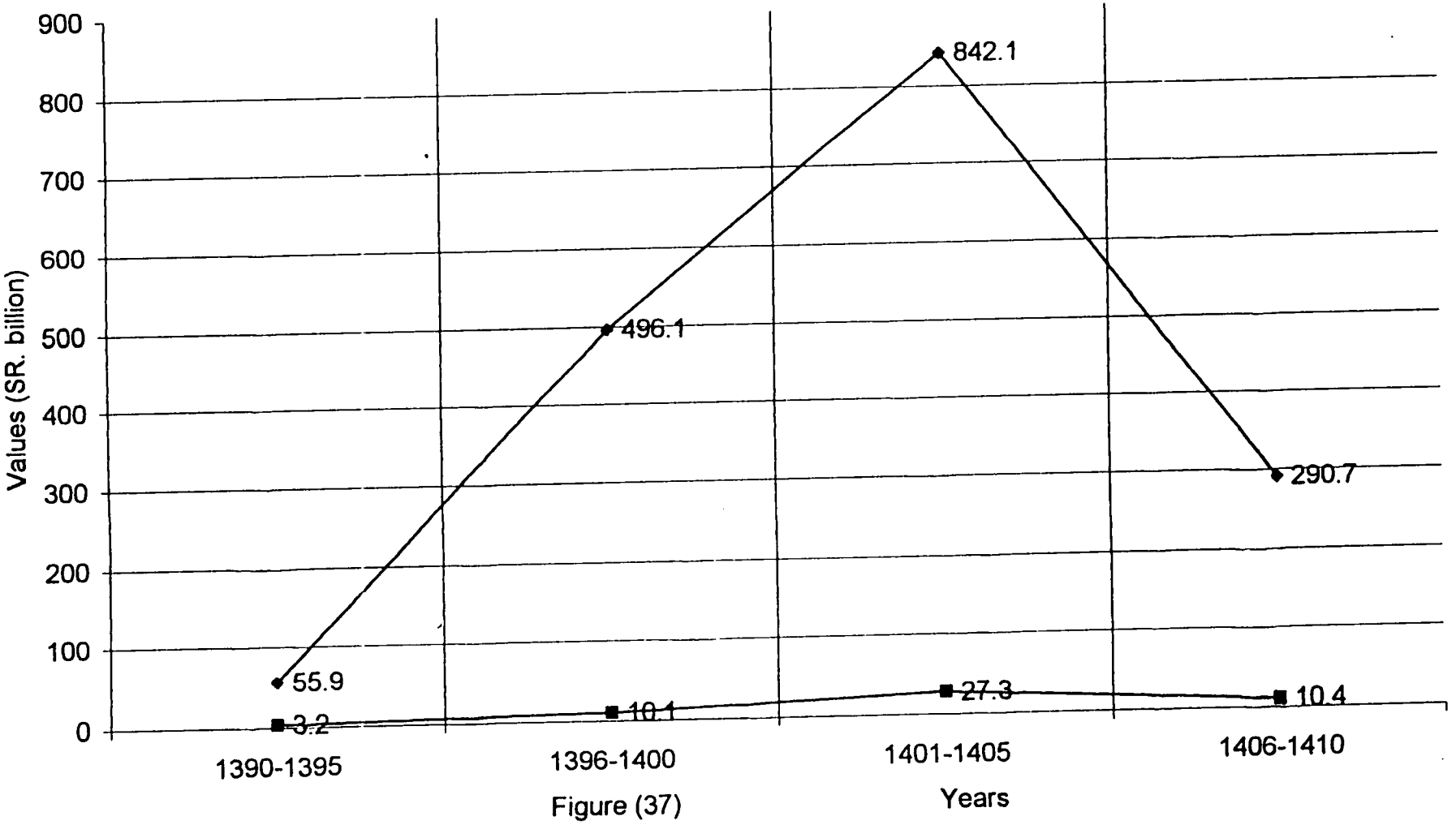


Figure (37)

In addition, the Ministry built a total of 146 first-aid centers for the Saudi Red Crescent. Moreover, the private sector built a total of 74 hospitals and 591 dispensaries, while the total number of hospitals built all over the Kingdom by all parties up to the year 1415AH (1995) was 285. The appropriation for the projects of the Ministry was an average of SR 1.5 billion per year. The total appropriation represents 2.0% of the total appropriation of the Government for projects as shown in Table (44). Figure (39) represents a comparison between the total government appropriation for projects and the appropriation for Ministry projects per each development plan.

E. COMMUNICATION DEPARTMENTS

The Government appropriated a total of SR. 227.1 billion for the projects of the Communication Departments, over the period from 1390 to 1415AH.

Table (43) Government Appropriation for Health Sector vs. Health Projects Appropriation

Gregorian Year	Hijriah Year	Government Appropriation Billion SR.	Projects Appropriation Billion SR.	Percentage (%)
1970	1390/1391	00.2	0.01	5%
1971	1391/1392	00.3	0.03	10%
1972	1392/1393	00.4	0.04	10%
1973	1393/1394	00.6	0.09	15%
1974	1394/1395	01.2	0.44	37%
1975	1395/1396	03.2	2.07	65%
1976	1396/1397	02.9	1.74	60%
1977	1397/1398	03.4	1.77	52%
1978	1398/1399	04.1	1.86	45%
1979	1399/1400	04.2	2.48	59%
1980	1400/1401	05.7	2.43	43%
1981	1401/1402	07.8	2.81	36%
1982	1402/1403	08.9	3.69	41%
1983	1403/1404	08.5	2.66	31%
1984	1404/1405	10.9	4.22	39%
1985	1405/1406	09.0	2.22	25%
1986	1406/1407	07.2	2.22	31%
1987	1407/1408	08.5	1.43	17%
1988	1408/1409	07.9	0.86	11%
1989	1409/1410	07.7	0.70	9%
1990	1410/1411	08.3	0.66	8%
1991	1411/1412	09.9	0.82	8%
1992	1412/1413	09.1	0.69	8%
1993	1413/1414	10.1	0.71	7%
1994	1414/1415	08.3	0.47	6%

Sources:

1. Statistical Yearbooks (1390-1416AH)

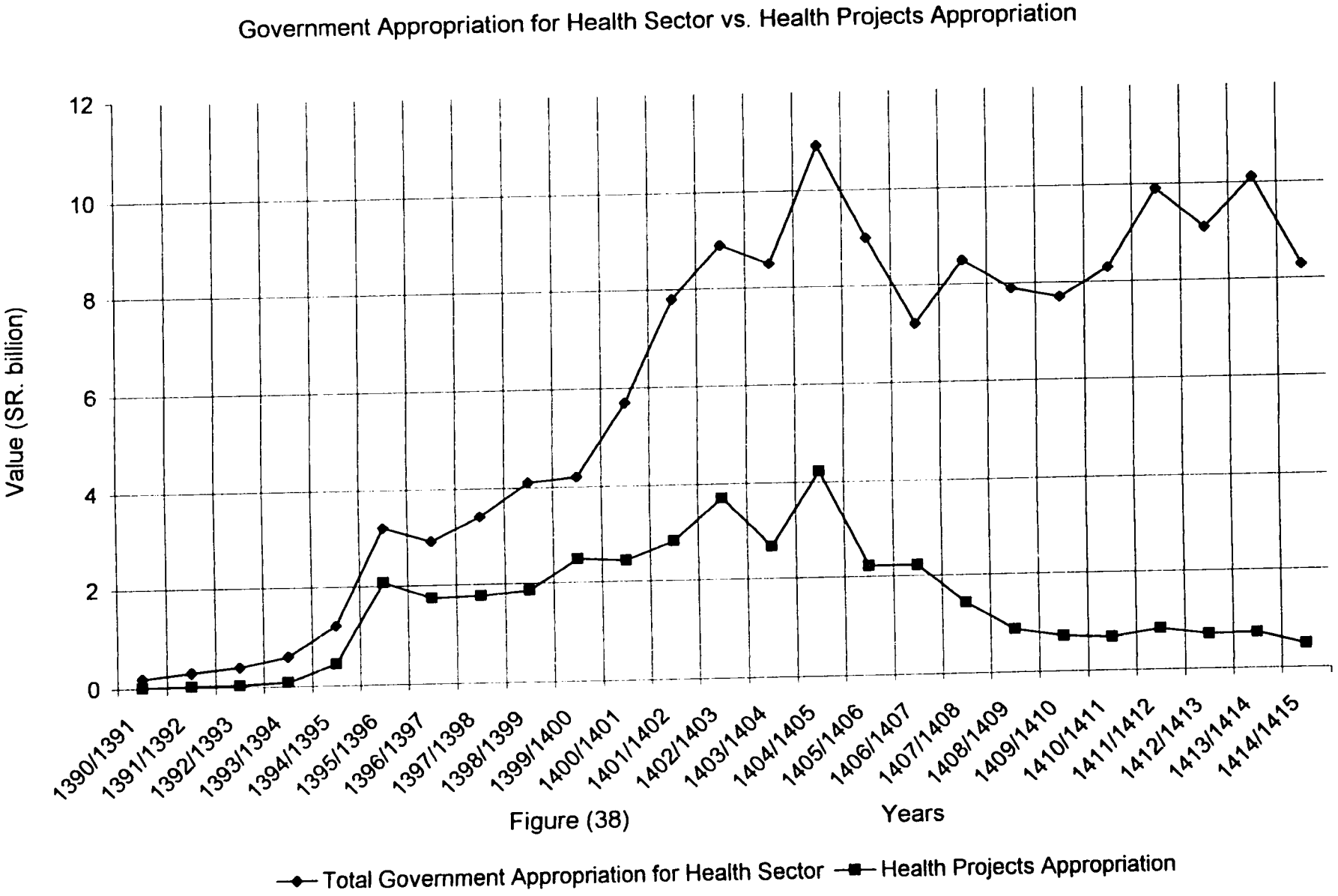

Government Appropriation for Health Sector vs. Health Projects Appropriation
Value (SR. billion)
12
10
8
6
4
2
0
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
1412/1413
1413/1414
1414/1415
Years
Total Government Appropriation for Health Sector
Health Projects Appropriation

Figure (38)

Table (44) Government Projects Appropriation vs. Appropriation of Projects for Ministry of Health & Red Crescent

Gregorian Year	Hijriah Year	TOTAL GOVERNMENT APPROPRIATION (SR billion)	Appropriation of Ministry of Health & Red Crescent (SR billion)	Percentage (%)
1970-1975	1390-1395	055.9	00.6	1.0%
1975-1980	1396-1400	496.1	10.0	2.1%
1980-1985	1401-1405	842.1	15.8	2.0%
1985-1990	1406-1410	290.7	07.4	2.5%
1990-1995	1411-1415	141.1	03.4	2.4%
Total		**1826.0**	**37.2**	**2.0%**

Sources:

1. Statistical Yearbooks (1390-1416AH)

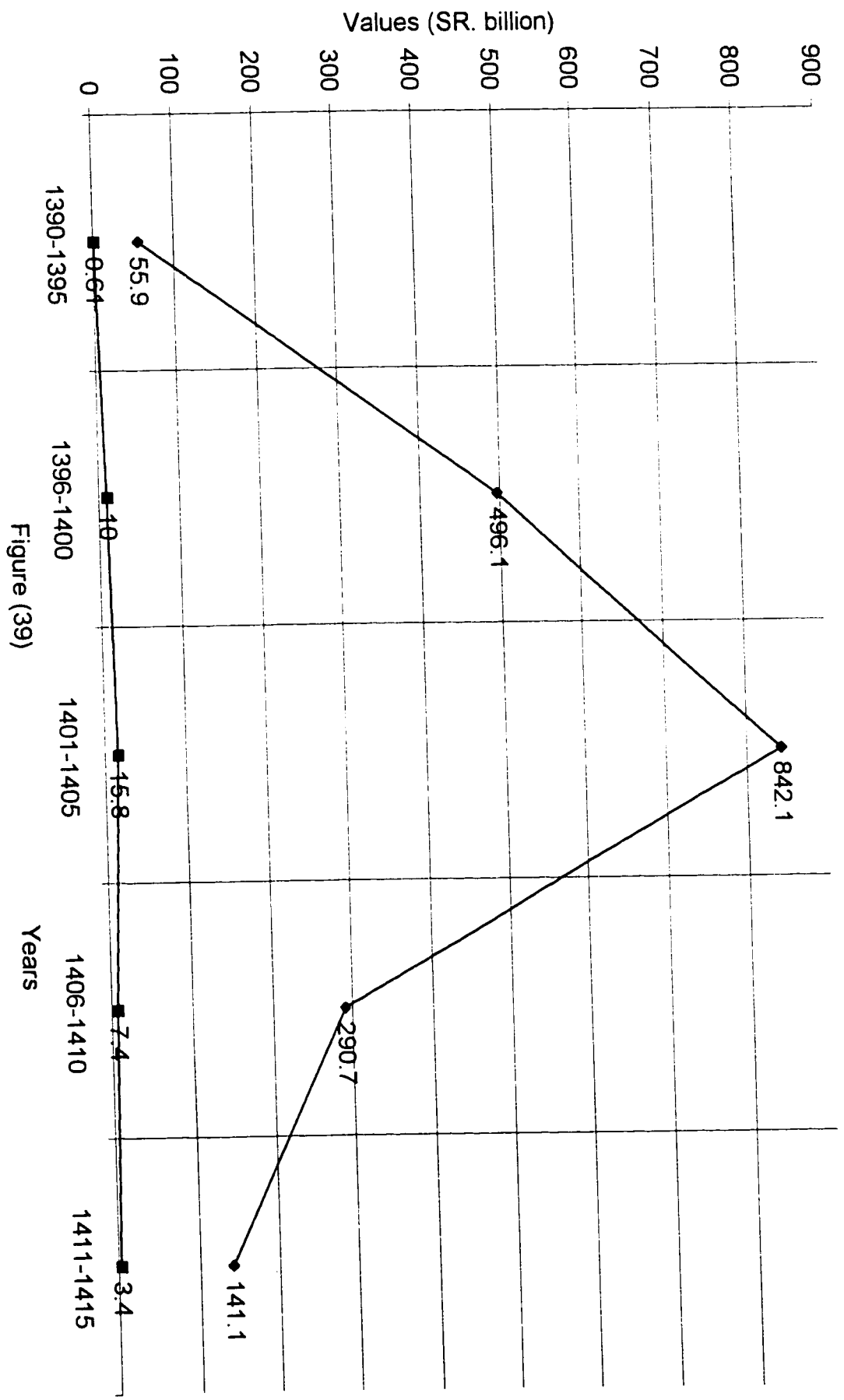

Government Projects Appropriation vs. Appropriation for Ministry of Health & Red Crescent Projects
Values (SR. billion)
900
800
700
600
500
400
300
200
100
0
55.9
496.1
842.1
290.7
141.1
0.61
10
15.8
7.4
3.4
1390-1395
1396-1400
1401-1405
1406-1410
1411-1415
Years

Figure (39)

This appropriation represents 12.4% of the total appropriation by the Government for all projects as shown at Table (45) and represents 64.2% of the total appropriation for the Communication Departments by Government (SR. 376.1 billion) as shown in table (37). Table (45) shows that during the first two developments plans the appropriation of the projects that were constructed for the Communication Departments as a percentage of the total project appropriation were 20.6% and 19.9% respectively. These percentages were more than the overall average (12.4%) of the appropriation for Communication projects. That was due to the high demand for the services of the Communication Departments. A comparison between what were the total appropriation for projects per each development plan and the appropriation for projects by the Communication Departments is presented in Figure (40).

Table (45) Government Projects Appropriation vs. Appropriation of Projects for Communication Departments

Gregorian Year	Hijriah Year	Total Appropriation Billion SR.	Appropriation of Communication Departments (Billion SR.)	Percentage (%)
1970-1975	1390-1395	055.9	11.5	20.6%
1975-1980	1395-1400	496.1	98.8	19.9%
1980-1985	1400-1405	842.1	80.5	09.6%
1985-1990	1405-1410	290.7	23.2	08.0%
1990-1995	1410-1415	141.1	13.1	09.3%
Total		**1826**	**227**	**12.4%**

Sources:

1. Statistical Yearbooks (1390-1416AH)

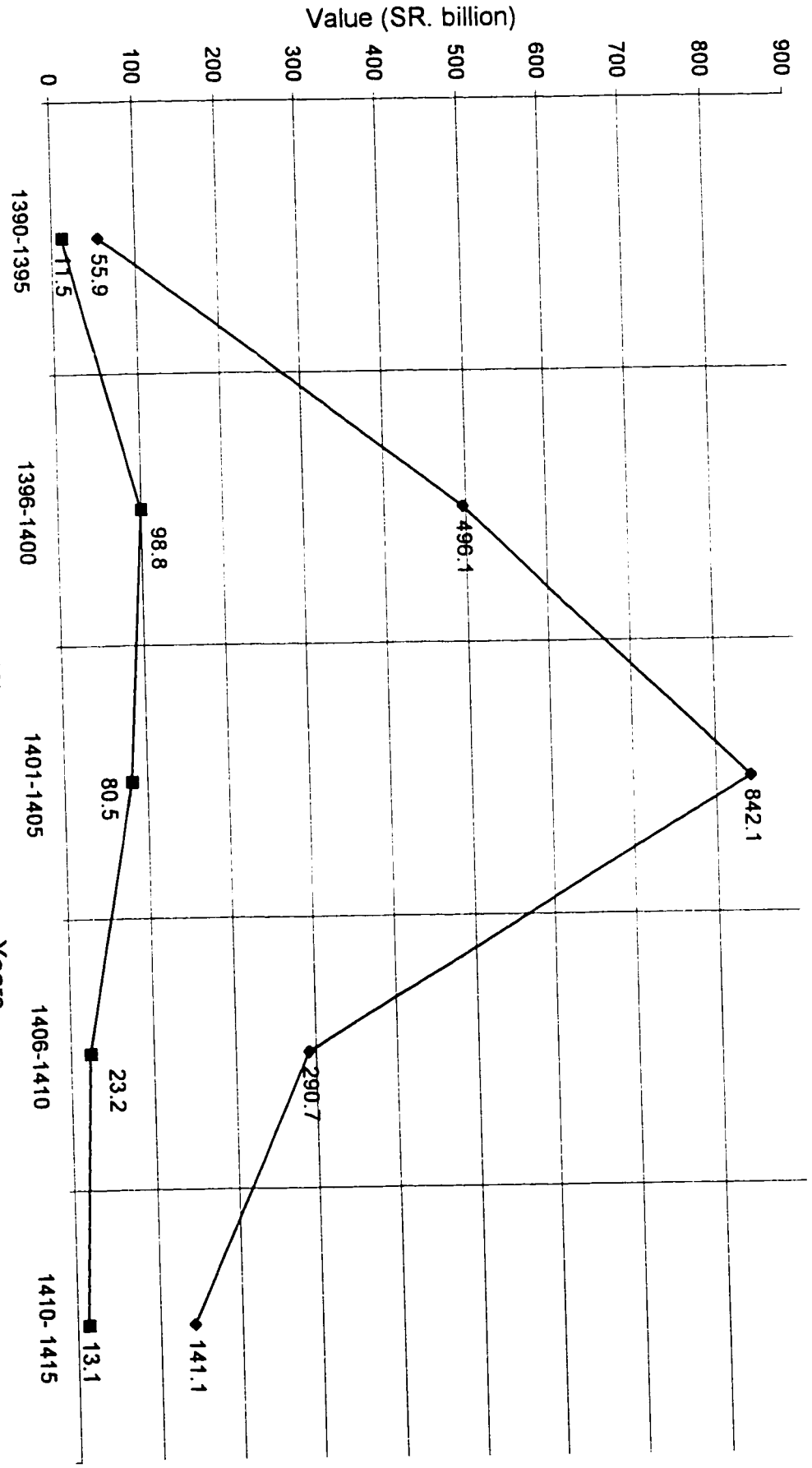

Government Projects Appropriation vs. Appropriation for Projects of Communication Departments
Value (SR. billion)
900
800
700
600
500
400
300
200
100
0
1390-1395
1396-1400
1401-1405
1406-1410
1410- 1415
Years
11.5
55.9
98.8
80.5
496.1
842.1
290.7
23.2
141.1
13.1
Government Appropriation for all Projects
Appropriation for Projects of Communication Departments

Figure (40)

E. MINISTRY OF MUNICIPAL AND RURAL AFFAIRS

The appropriation for the Ministry of Municipal and Rural Affairs projects was about SR 184 billion as shown in Table (46) over the period from the year 1390 to the year 1412AH as published at the Statistical Yearbooks (1390-1415). This appropriation represents 10.5% of the total Government appropriation for projects.

The Ministry involved in the development of the following areas all over the Kingdom:

1. Water, sewage and rainwater drainage
2. Asphalting and road works
3. Markets
4. Parks recreation areas
5. Other utilities

In year 1403/1404AH, the Ministry spent an amount of SR 4.6 billion on the development of the above areas [Annual Report of the Saudi Arabian Monetary Agency 1406AH (1986)]. The actual expenditure on the development of these areas declined in the following years to reach about SR. 600 million in 1410/1411AH. The total amount spent until year 1410/1411 was approximately SR 39.2 billion, which represents 75% of the total cost estimated (SR 52.6 billion). Out of the SR 39.2 billion spent, SR 17.5 billion was spent to develop water, sewage and rainwater drainage systems. In addition, SR 18.3 billion was spent to develop roads and the remainder of the SR 39.2 billion was spent to develop the other areas [Annual Report of the Saudi Arabian Monetary Agency (1410-1411), 1990]. The following are the accomplishments of the Ministry from 1390 to 1416AH (1970-1995): [Achievements of the Development Plans 1390-1416 (1970-1996)]

- Construction of a network for potable water in different cities (33,700 Km to provide water for 855,000 households).

- Construction of a network for waste water (9,700 Km to provide service for 579,000 households).

- Plantation of about 46.5 million square meters to include 3000 public parks, 1,100 of which were provided with children's playgrounds.

- Construction of about 247 slaughterhouses.

- Construction of about 970 public toilet units.

- Construction of 315 municipal buildings.

- Fencing of about 2,100 cemeteries.

- Construction of 950 public car parks.

- Construction of 425 mortuaries.

- Construction of 8000 main roads for a total of 24,000 Km.

- Installation of 250,000 streetlight poles and 2.5 million trees along the main roads.

- Construction of 159,950 secondary roads.

- Installation of 290,000 streetlight poles and 4 million trees along the secondary roads.

- Constructions of 1,400 marketplaces with a total area of about 15 million square meters.

4.6 Future Trends

The future trends of the construction industry in Saudi Arabia are expected to be higher than what existed during the Fifth Five-Year-Development-Plan (1410-1415AH). The rate of growth in this sector is likely to be around 4.0% per year. The demand for houses will increase and there will be enough commercial buildings [Sixth Five-Year-Development-Plan (1415-1420AH)].

In the services sector for example, the Transportation and Communication sectors will grow at a rate of 2.9% per year. In

addition, home ownership will grow at a rate of 3.3% per year [Sixth Five-Year-Development-Plan (1415-1420AH)].

In addition, in the Industrial sector, secondary industry will grow at a rate of 4.9% per year [Sixth Five-Year-Development-Plan (1415-1420AH)].

Finally, the overall rate of growth in Saudi Arabia will be 3.8% per year during the period from 1415 to 1420AH [Sixth Five-Year-Development-Plan (1415-1420AH)].

Table (46) Government Appropriation for Ministry of Municipal & Rural Affairs vs. Ministry Projects Appropriation

Gregorian Year	Hijriah Year	Government Appropriation Billion SR.	Projects Appropriation Billion SR.	Percentage (%)
1970	1390/1391	00.5	00.2	40.0%
1971	1391/1392	00.6	00.4	66.7%
1972	1392/1393	00.9	00.6	66.7%
1973	1393/1394	01.9	01.6	84.2%
1974	1394/1395	04.3	03.7	86.0%
1975	1395/1396	14.4	13.2	91.7%
1976	1396/1397	16.1	14.8	92.0%
1977	1397/1398	13.5	11.7	86.7%
1978	1398/1399	10.3	08.0	77.7%
1979	1399/1400	12.7	10.3	81.1%
1980	1400/1401	19.7	16.6	84.3%
1981	1401/1402	25.3	22.7	89.7%
1982	1402/1403	26.2	22.0	84.0%
1983	1403/1404	19.1	14.0	73.3%
1984	1404/1405	17.1	12.2	71.3%
1985	1405/1406	11.9	08.0	67.2%
1986	1406/1407	08.1	08.0	98.7%
1987	1407/1408	08.1	05.0	61.7%
1988	1408/1409	07.7	03.7	48.1%
1989	1409/1410	05.4	02.3	41.8%
1990	1410/1411	05.5	02.4	43.6%
1991	1411/1412	07.1	02.4	33.8%
1992	1412/1413	05.5	No record	No record
1993	1413/1414	06.1	No record	No record
1994	1414/1415	05.2	No record	No record

Sources:

1. Statistical Yearbooks (1390-1416AH)

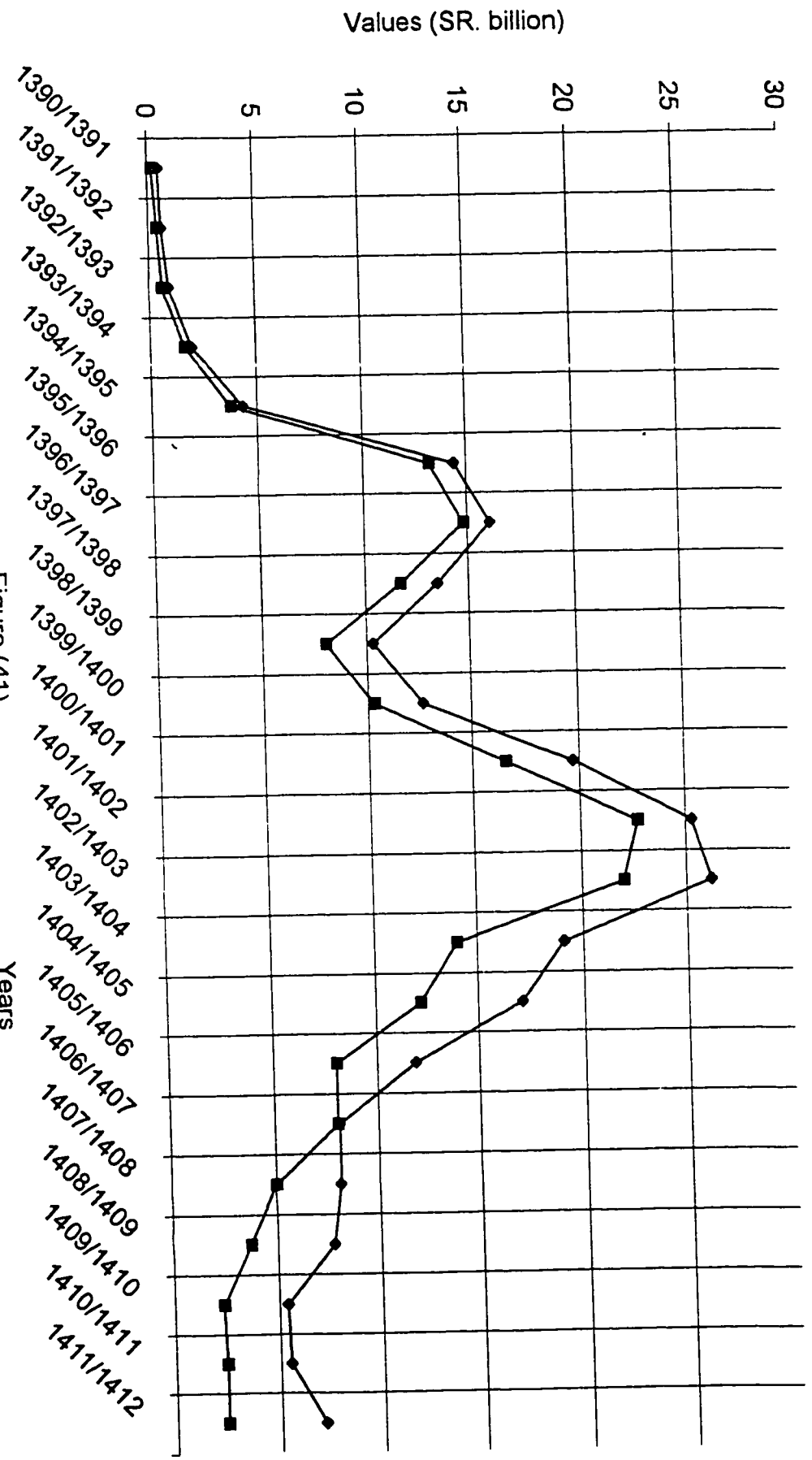

Government Appropriation for Ministry of Municipal & Rural Affairs vs. Appropriation for Projects
Values (SR. billion)
0
5
10
15
20
25
30
1390/1391
1391/1392
1392/1393
1393/1394
1394/1395
1395/1396
1396/1397
1397/1398
1398/1399
1399/1400
1400/1401
1401/1402
1402/1403
1403/1404
1404/1405
1405/1406
1406/1407
1407/1408
1408/1409
1409/1410
1410/1411
1411/1412
Years
Overall Appropriation
Projects Appropriation

Figure (41)

CHAPTER FIVE

Conclusion and Recommendations

5.1 Introduction

The construction industry in Saudi Arabia was not any different from that found anywhere else. The only special thing about this industry was that in a very short period of time it grew from almost nothing to a massive industry. The owners of the projects, which means the Government in most cases, in fact ignored the cost and the quality of the constructed projects especially during the construction boom time. Their main goal was to beat time and construct as many projects as they could.

It is not clear how every party involved in the construction industry affected this industry. Was the effect by initiating projects? Was it by establishing rules and regulations? Was it by influencing the decision of others toward this industry? Many questions may be asked in an attempt

to determine which parties affected the development of the construction industry in Saudi Arabia and the extent to which each party was involved.

The data, the sources of information regarding this industry and the accuracy of the data were all limited and when found they were at times conflicting. Sometimes one type of data differs in quantity or detail from one issue to another of the same publication. For example, in 1401/1402AH, the amount of money loaned by the Ministry of Finance to the private sector was about SR. 2,450,110,000 [Statistical Yearbook, 1402, (1992)]. Another issue of the same source but in a different year [1405/1406AH, (1986)] showed different figures (SR. 85 million) for the same area and period.

5.2 Analysis of the Conclusion

The Government spent generously on the construction industry. The trend of their spending on construction matched the trend in oil prices, the main source of income. The Government, as mentioned before,

owned 67% of the total projects. [Bubshait] This portion of expenditure was equal to SR. 1,825,842.3 million [Statistical Yearbooks] This is based on the assumption that 100% of what was appropriated for the construction was indeed spent on this industry. This would lead to the conclusion that the expenditure by other parties involved in the construction industry was 33% or SR. 912,921.15 million over a period equal to twenty five years (1390AH-1415AH).

The construction materials were of different types. Some of these could be manufactured locally and others were imported from abroad. The size of the project determined the quantities of the construction materials required. Businessmen, with the encouragement of the Government, were trying their best to meet the demand for construction materials. They built factories to manufacture such materials and they imported what they could not produce. During the construction boom time 1398-1404AH (1978-1984), the cost of the construction materials was not a factor since the overall cost of the project in general was not a

factor to start with. That the projects should be completed on schedule was the prime concern.

In twenty five years (1390-1415AH.) lots of hospitals, housing units, hotels, airports, seaports, office complexes, car parks, mosques, shopping malls, dams, wells, water desalination plants, greenhouses and so many more structures were constructed in the Kingdom to meet the needs of the country. Thousands of kilometers of telephone lines, electrical power cables and water pipelines were erected in a quarter of a century.

The rate of constructing these units differed from one year to another because of the demand for these units and the availability of financial resources. The demand for such units increased steadily throughout the period, but the financial aspect of the projects was not available all the time. This is noticeable in all the tables and figures presented in this study. There was considerable variation in the number of projects actually under construction at different points in time. The demands this

activity placed on the infrastructure were also increasing. Government, semi-Government companies and the private sector were building as much as they could in an effort to meet the increasing demand.

The number of permits issued by all the municipalities all over the country was evidence of how busy every one involved in the construction industry was. Those permits were just to build new buildings, modify, renovate and/or expand existing buildings.

In addition, the Ministry of Industry and Electricity was involved in issuing permits to the private sector. These permits were of different types from those issued by the municipalities. These permits were issued for industrial types of projects. More than two thousands factories with a total investment of SR. 150 billion were constructed over an area of 32.2 million square meters of industrial cities.

Almost all Government departments were involved in the construction industry. They all appropriated billions of Saudi Riyals for this sector in their annual budgets. Not all of them have continued to

appropriate for this sector. Only those departments that provide services to the people continued and will continue to do so for as long as there is a need for their services.

Moreover, the loans by the Agricultural Bank to the farmers for construction purposes accounted for at least 25% of the total loans by the Bank. This percentage represents almost SR. 7 billion.

In addition, contractors, consultants, and design offices participated in the construction development. There are almost 4000 different types of contractors and 1077 consultants and design offices specialized in different fields in the Kingdom.

Other major contributions in the construction industry were by the Semi-Government companies such as Saudi Aramco, SABIC and SECECO. Their involvement in the construction industry was noticeable and remarkable.

Finally, the workers, who were coming from all over the world, were the driving force for this industry. At one point in time, their

volume increased up to almost 1.5 million construction workers. Their contributions and involvement were necessary for this industry to be where it is now.

5.4 Recommendations

It is recommended that in addition to the internal and external factors already considered, the following areas be examined as factors that might affect the construction industry in Saudi Arabia in the future:

1. Global economic problems

2. Regional political conflicts

3. Natural phenomena

4. Diversification of the economy (income)

A further study regarding future trends in the construction industry in Saudi Arabia using the available information would also be valuable. In addition, it is recommended that this field of information regarding the construction industry in Saudi Arabia be updated regularly.

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